Augusta Power Stations

Dust Management Plan

Demolition and Site Rehabilitation

Flinders Power
Port Augusta

March 2017

	Title:	Names:	Signatures:	Date:
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Document History

Rev	Date	Amended by	Description of Changes
Draft		Kieron Smith	Initial Draft Version
Rev 1	24/8/2016	Kieron Smith	Updated and changed to cover Make –Safe Period
Rev 2	9/9/2016	Kieron Smith	Updated and changed to cover Demolition Period
Rev 3	5/10/2016	Kieron Smith	EPA recommendations and corrections incorporated
Rev 4	5/10/2016	Kieron Smith	Ash Storage Area dust management options modified
Rev 5	5/11/2016	Brad Williams	Final version incorporating EPA feedback
Rev 6	1/02/2017	Brad Williams	Revised following dust event of 1st and 2nd January 2017
Rev 7	3/03/2017	Brad Williams	Revised to address EPA feedback of 20th February 2017

Contents

1. Introduction & Purpose

Flinders Power operates the Flinders assets which comprise the Northern and Playford Power Stations in Port Augusta (known collectively as the 'Augusta Power Stations' (APS)), as well as the Leigh Creek Coal Mine. Flinders Power also maintains a dedicated rail line between Leigh Creek and Port Augusta.

Flinders Power is strongly committed to sound environmental management, as demonstrated within the board-endorsed Environment & Community Policy. The Policy states a commitment to partnering with the communities in which Flinders Power operates, and a focus on continual improvement of environmental performance.

The nature of the operation, if poorly managed, has the potential to create fugitive dust emissions which may adversely impact on the amenity of the local community. Therefore, the objectives of dust control are to:

1. Minimise and control the impact of Flinders Power closure activities on air quality and emission of dust from rail and site operations;

2. To ensure compliance with EPA Licence requirements;

3. Maintain environmental amenity and a strong relationship with the local community and regulatory authorities.

To achieve these objectives, a Dust Management Plan (DMP) has been formed. The objectives of the DMP are to:

- Nominate potential sources of dust emissions;
- Describe methods and responsibilities for dust management controls to minimise the potential for impacts to the environment;
- Clearly define the responsibilities and actions required to respond to environmental incidents;
- Outline the methods to communicate and engage with the local community in relation to dust management; and
- Outline the monitoring and reporting arrangements to ensure ongoing compliance with the DMP.

Scope

This plan applies to activities covered under:

- EPA Licence 13006 (Northern & Playford Power Stations); and
- EPA Licence 13011 (Leigh Creek to Port Augusta Railway Operations).

This document is also part of the site Environmental Closure and Post Closure Plan where specific activities and responsibilities for performing dust management measures are assigned to the appropriate parties. During the site demolition process Flinders Power has specific responsibility for areas not covered by the plant demolition project. These areas, the Ash Storage Area and the Coal Stockpile Pad, are subject to separate rehabilitation and revegetation projects, covered in the Environmental Closure and Post Closure Plan.

Dust management activities involved with the decommissioning and demolition of the plant and structures on site are covered in the demolition plans developed under the Project Alliance Agreement.

2. Background

The Playford Power station (PPS) ceased operation in April 2012. The Northern Power Station (NPS) ceased operation on the 9th May 2016.

NPS and PPS utilised a supply of coal delivered daily by train from the Leigh Creek Coalfields. After combustion in the boilers, ash was collected from the bottom of the boiler, mixed into a seawater slurry and transferred to the Ash Storage Area by pipeline. Fly ash from the exhaust gas was captured by electrostatic precipitators at NPS, bag house filters at PPS, and then sold to secondary users with the excess transferred to the Ash Storage Area.

The Ash Storage Area was continually filled with deposited ash and sea water slurry from the boilers. The nature of this mixture allowed the surface to form a salt crust when it dried out - due to the ever-changing location of the deposition field creating high areas of ash. During heavy rain this surface crust was occasionally damaged allowing winds to disturb the ash and potentially blow it off site.

There was also a flooding regime for the Ash Storage Area, whereby internal levees were built up, filled with an ash/water mixture and then quickly released to allow for a large portion of the surface of the Ash Storage Area to be flooded so that a salt crust could re-form on top. This management strategy changed in October 2016 due to the erosive effects of utilising a pure seawater flooding technique (as opposed to an ash and seawater slurry) and the increased risks associated with dust generation. In November 2016 the 212Ha Ash Storage was sealed utilising a dust suppressant applied by air and land.

The coal stockpile at Augusta Power Stations was designed as an emergency supply, should mine site or railway operations be impacted. Historically the coal stockpile has been used on only intermittent occasions. However during the last few years of operation, due to increased variability in load profile in response to increased volatility in the SA energy market, the stockpile was utilised as a dynamic stockpile. The movement of coal on the stockpile became a frequent activity to meet strategic stockpiling or generation output needs as required. The increased use of the stockpile increased the risk of fugitive dust emissions.

To reduce these impacts during operation there were established Operating Instructions relating to the methods of stockpiling and reclaiming coal from the stockpile, the use of water cannons for wetting down the stockpile, the use of a water truck for applying dust suppressant to the surface of the stockpile water and a description of weather conditions for operations on the stockpile.

Whilst these actions were effective in reducing dust emissions from the stockpile and Ash Storage Area, a change in strategy, continued monitoring, vigilance and innovation is required to maintain control over dust emissions during the demolition and site rehabilitation phase.

Other identified sources of minor fugitive dust during this phase include roadways and during demolition of coal and ash handling plant.

3. Setting

The township of Port Augusta is located approximately 300km north of Adelaide on the northern tip of Spencer Gulf and has a Dry Arid Low Latitudes climate.

Figure 2 demonstrates the seasonal wind patterns for the region, including wind direction and wind speed. The charts indicate that strong regular southerlies are dominant during the summer season. Port Augusta township, especially the suburb of Willsden, is potentially affected by fugitive coal dust and ash for most of the year, except during winter when the dominant wind direction changes from southerlies to northerlies.

Stockpile

The distance between the coal stockpile and the closest residents in Port Augusta to the north is approximately 3.5km (refer to Figure 1 below). The Ash Storage Area is located between these two points.

Coal formerly arrived from the Leigh Creek mine in open rail wagons and was bottom dumped via the rail car dumper on the rail line near the coal stockpile. It was then conveyed to either the main coal storage bins for immediate use or to the stockpile for storage.

Maintaining the moisture level of the coal to a point where surface dust mobilisation is decreased from the stockpile was achieved by the use of water cannons on the stockpile.

The coal stockpile has been decommissioned and as of September 2016 the pad was being rehabilitated and revegetated. A sprinkler system has been established over the surface area to promote vegetation establishment and control dust.

Ash Storage Area

Waste ash from the boilers and the electrostatic precipitators was formerly mixed with seawater and piped to the Ash Storage Area.

Deposited ash formed a salt crust due to the evaporation of water from the mix which stopped the ash from being mobilised and entrained by wind into the airshed.

The levees on the edges of the Ash Storage Area were periodically raised to allow for a greater ash holding capacity.

During the operational period ash could enter the airshed during windy periods when the surface crust was damaged by heavy rain and after heavy machinery working on the ash dam has broken up the surface. A map of the Ash Storage Area in shown in Figure 3 with flood coffer dams numbered and the direction of floodwater flow during surface flooding events indicated.

Following NPS closure a number of measures were taken to control dust lift-off from the Ash Storage Area, including the installation of new pipework to ensure continued seawater supply, the construction of new coffer dams and the use of a temporary pump and pipework from Playford. Periodic filling of the coffer dams and breaching enabled seawater to flow out and re-establish a crust. However this continued operation was progressively causing erosion to the surface of the dam and the banks of the coffer dams, and certain areas such as the central discharge point were unable to be reached by flooding. In August 2016 a 15Ha area adjacent the original slurry discharge

point was sealed with dust suppressant applied by cropduster. This treatment was successful in containing dust from this area. Continued flooding to the east and west of this location caused further damage and in October 2016 it was decided to change strategy from seawater flooding to sealing the entire dam surface with dust suppressant.

These measures will achieve short-term dust control, particularly during summer 2016/17, while the long-term rehabilitation plans are being implemented. These actions are referenced in Implementation and Control Action 2.

In late December 2016 a major storm event impacted the dust suppressant seal, causing areas of ash to be re-exposed. On the 1st and 2nd January 2017 a dust event occurred whereby windblown dust was generated from the surface of the dam.

Reapplication of the dust suppressant was conducted throughout January 2017, with a seal re-established by 25th January 2017. Commencement of earthworks also occurred during this period with the opening of an adjacent borrow pit, and the commencement of construction of topsoil 'fingers' across the surface of the dam.

Coal Conveyor System

The coal conveyor system begins at the train unloading facility at NPS. Coal was directed either to the coal storage bins or the coal stockpile by the conveyor system. Coal from the storage bins was conveyed to PPS or NPS as required. The coal conveyors are enclosed and the transfer points are inside a number of enclosed towers to reduce dust emissions.

Fugitive coal dust was formerly washed down daily from the inside of the conveyor enclosures and the transfer towers. The effluent was captured in sumps underneath the towers where the coal dust sediment was collected and returned to the stockpile area.

Following closure, clean-out of the conveyor lines and transfer towers occurred with all accessible coal washed to the ground where it could be contained and disposed. These control actions are described in the APS Environmental Closure and Post-Closure Plan.

Short term coal dust management measures are being applied during the demolition and rehabilitation phase. This is referenced in Implementation and Control Action 3 & 5.

Coal Storage Bins

There are three Coal Storage Bins at NPS with a capacity of 18,000 tonnes located to the west of the stockpile. These are enclosed, with a tripper on top conveyors and ploughs on the bottom conveyors. Both of these are enclosed to reduce dust emissions.

Coal bins at Playford were decommissioned and emptied in 2012.

Following closure, clean-out of the NPS bins occurred with all accessible coal washed to the ground where it could be contained and disposed. These control actions are described in the APS Environmental Closure and Post-Closure Plan.

Short term coal dust management measures are being applied during demolition of the bins. This is referenced in Implementation and Control Actions 3 & 5.

Roadways

There are a number of roadways, sealed and unsealed, around the site where dust settles and aggregates. Road vehicle speeds are kept to a 20 kmh limit on most roads, with two roads on site having a 40kmh limit, for both safety and environmental considerations.

The Ash Storage Area is surrounded by a levee system allowing vehicle access on top. Windblown ash can settle on the roadways and this is periodically sprayed with dust suppression chemical and wet down with a water truck to reduce dust lift off.

Dust control measures used pre-closure are continuing during the closure process. This is referenced in Implementation and Control Action 4.

Demolition Activities

Flinders Power (FP) and McMahon Services Australia formed an Project Alliance Agreement in May 2016 to facilitate the successful delivery of the site demolition program.

The Alliance is a unified team to jointly manage the planning, asset salvage and decommissioning works of the Augusta Power Stations. The successful delivery of this project relies on the combined efforts of both FP and McMahon Services, and the pooling of knowledge, experience and expertise under the Alliance is the best contractual means to deliver the complex closure program. The Alliance will see the partnership of both the Owner Party (FP) and Non-Owner Party (McMahon Services) to create a single team working unanimously, collaboratively, and cooperatively and acting in good faith to make best-for-project decisions.

FP have invaluable knowledge and expertise about the Augusta Power Stations. This knowledge is integral to ensure the safety of all personnel and management of environmental risks. McMahon Services has over 25 years of decommissioning experience conducting high risk demolition and hazardous materials removal works at sites across Australia. McMahon Services are a licenced entity by the SA EPA and are accredited to ISO 14001.

Each module of works within the delivery phase is defined by a unique scope of work with Flinders reserving the right to let independent work scopes.

Potential dust generating activates identified in the Project Risk Assessment Register include:

- Stack felling;
- Bin felling;
- General demolition activities;
- General civil works; and
- General site traffic.

Dust management measures are being incorporated into the demolition control plans, as referenced in the APS Environmental Closure and Post Closure Plan and Alliance Demolition Plans.

Utilities Available During Demolition

The majority of electricity used by major plant at the station was formerly provided by onsite generation. Following closure, there remain a number of small electricity supplies to the site, mainly into offices and workshops, though the main infrastructure utilised for dust control is provided by large standalone portable generators. A number of water pumps are used around the Ash Storage Area for seepage water and a portable diesel water pump can be deployed as required.

Seawater has been previously pumped from the cooling water inlet screens of NPS to the Ash Storage Area via an agreement with a third party to access power supplies. Additional pipework and outlets were installed on the southern side of the Ash Storage Area for targeted seawater flooding. Additional seawater was also obtained from the Playford Station seawater inlet using a portable diesel water pump for flooding the south-western corner of the Ash Storage Area.

Mains water at high pressure, off the SA Water mains pipeline, is also available on site and is utilised for stockpile revegetation.

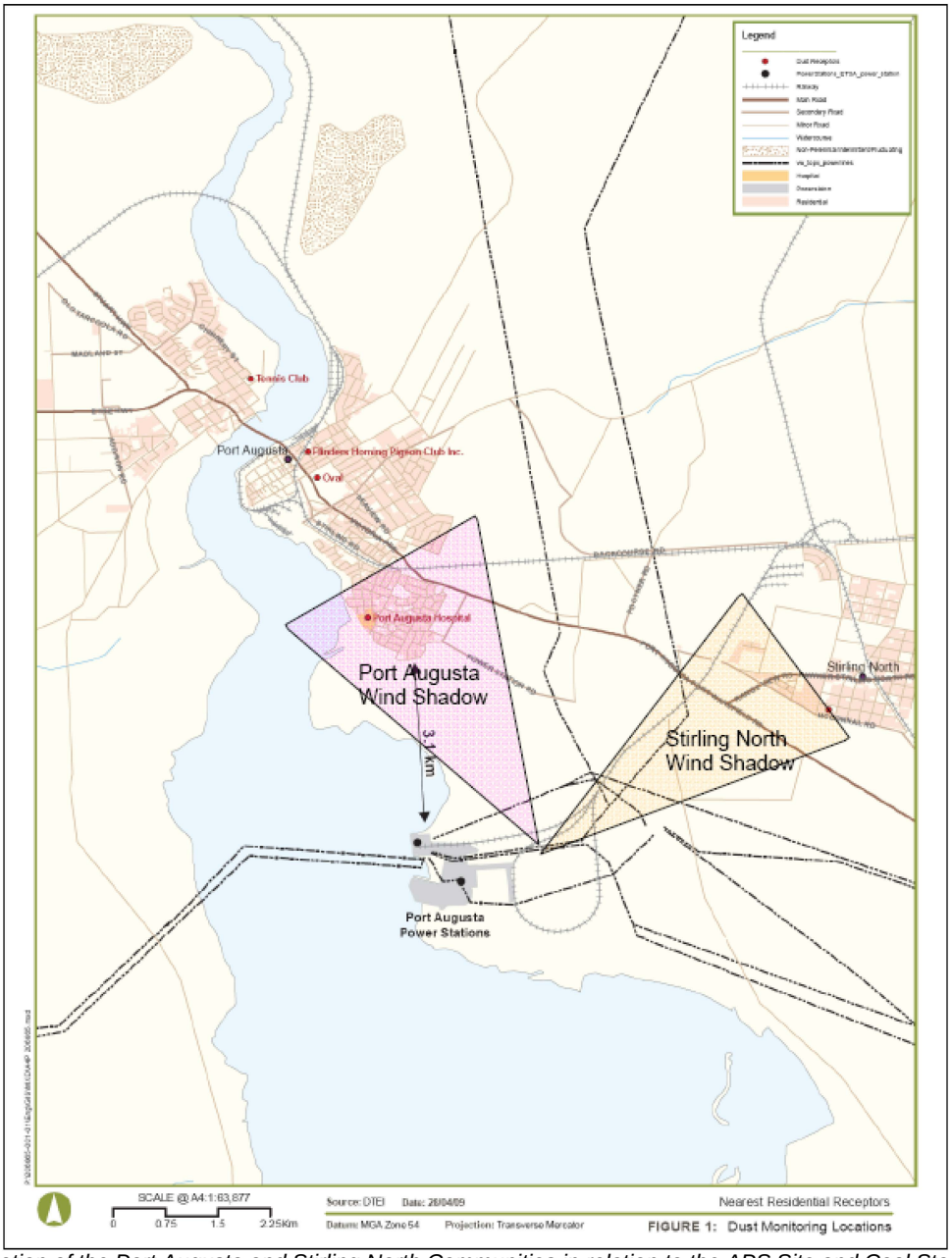

Figure 1 Location of the Port Augusta and Stirling North Communities in relation to the APS Site and Coal Stockpile (after Aurecon, 2010)

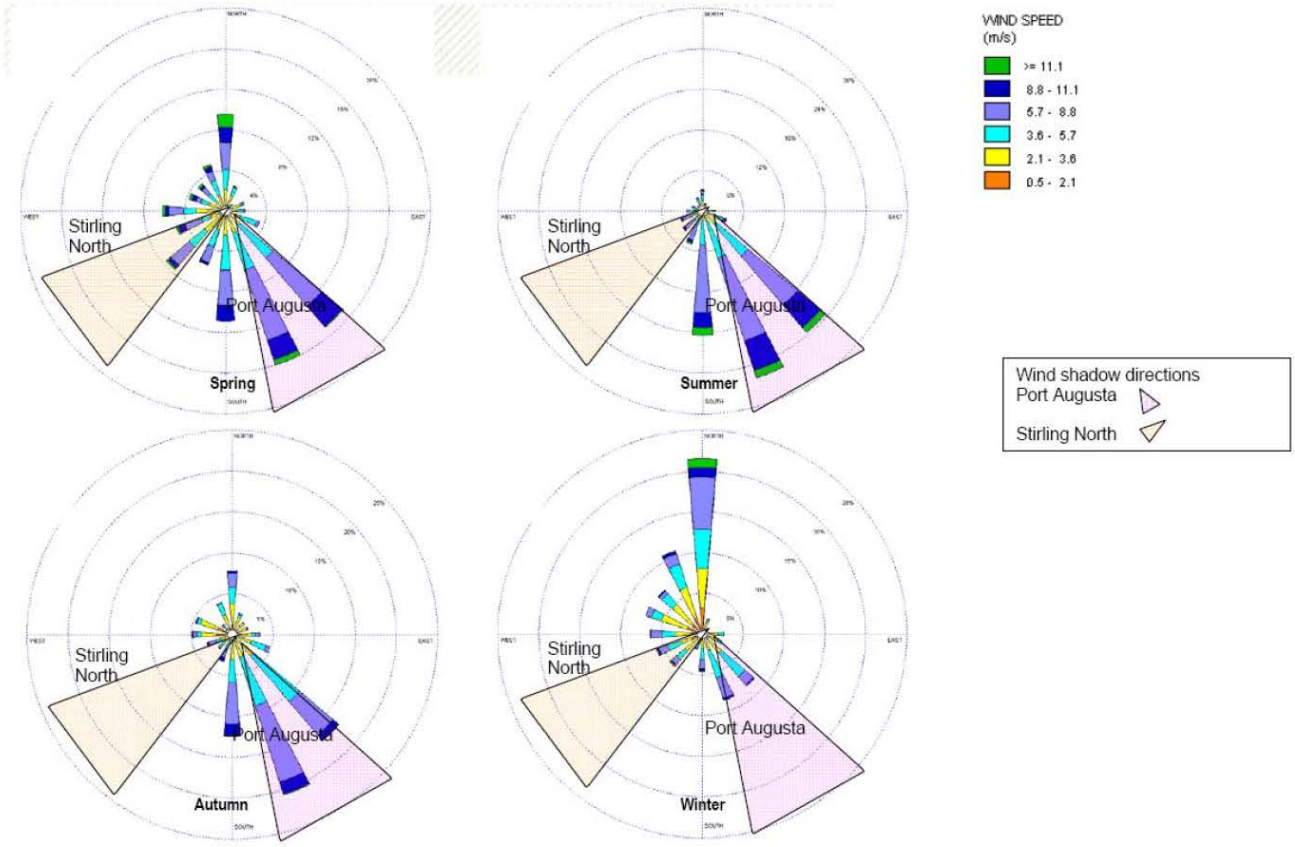

Figure 2 Seasonal Wind Profile

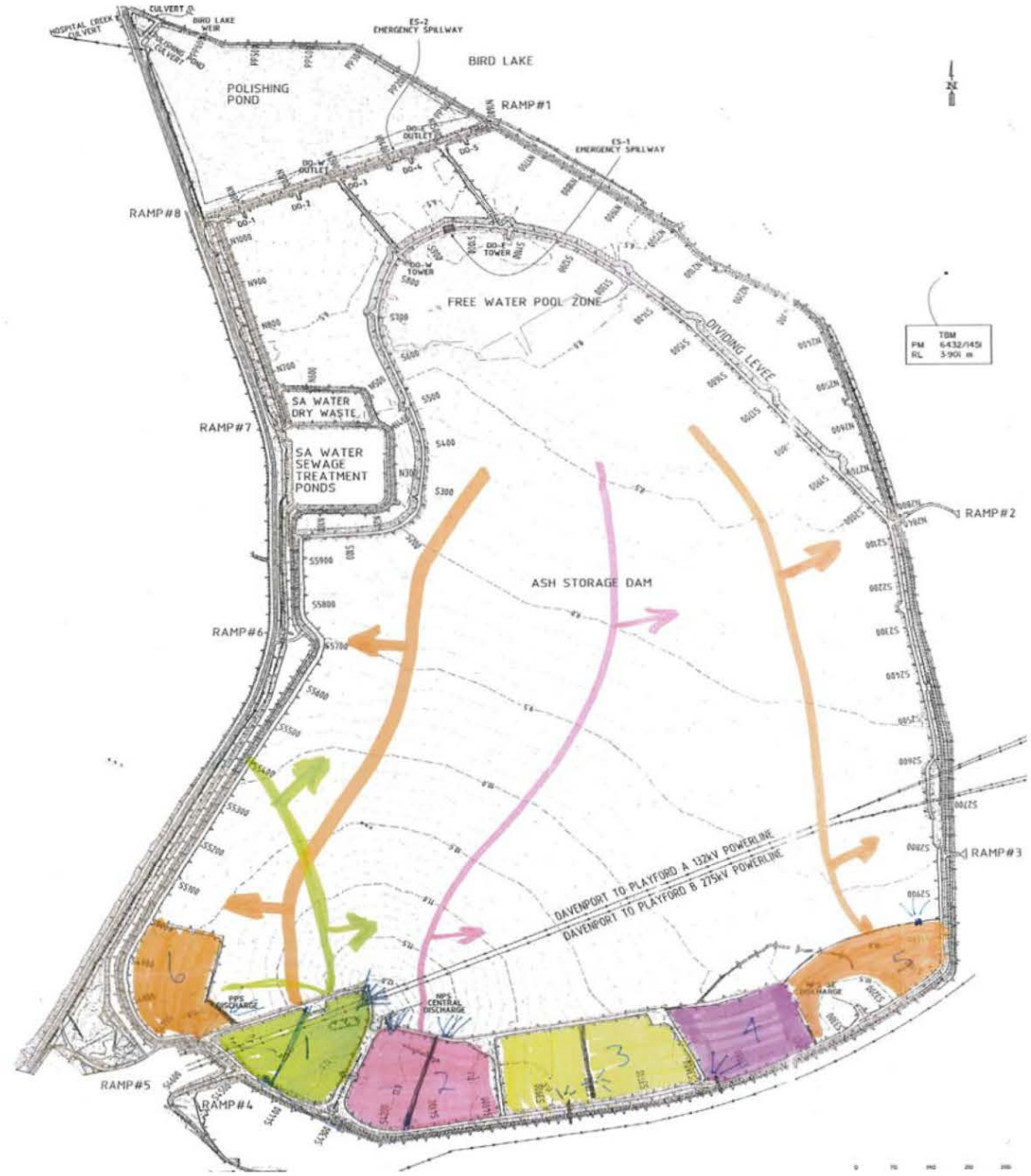

Figure 3 Ash Storage Area map showing numbered flood coffer dams and direction of floodwater flow during surface flooding events.

4. Supporting Documentation

The following document map outlines the role of the Dust Management Plan in meeting compliance obligations.

Governing Legislation	EPA Authorisations	Plans	Appendices & Supporting Documents
Environmental Protection Act 1993			
	EPA Licence 13006		
	Condition 1.1 Dust Prevention	**APS Dust Management Plan (this document)**	Appendix A: Ash Dam Interim Sealing – Proposal 7th November 2016 Appendix B: Ash Dam Interim Sealing – Risk Assessment 2nd January 2017 Appendix C: Complaint Handling Procedure Appendix D: Fugitive Dust Trigger Action Response Plan (Rev 1 5th January 2017) Appendix E: Ash Storage Area – Extreme Weather Monitoring & Response Plan
	Condition 2.2 Complaints Register	FPP Incident Management System	
	Condition 2.3 Develop and Implement Closure and Post-Closure Plan	Environmental Closure and Post Closure Plan – Augusta Power Stations	App A – Detailed Risk Assessments App B – NPS Make Safe Manual App C – PPS Closure Manual App D – Closure & Care Project Plan App E – Chemical & Oil Management Plan AppE1 – Chemical Manifest & Removal Scope App F – Demolition Alliance Supporting Plans App G - APS Dust Management Plan App H – Project Risk Assessment

		Register
	Condition 2.6 Generic Contingency Plan	Augusta Power Station Emergency Response Plan
	Condition 2.7 Pollution Control Equipment Register	Refer Ellipse Maintenance Management System
Environmental Compliance Agreement (2000)		
	Section 1 Definitions and Interpretations	Flinders Power APS Ash Storage Area End of Life Plan Draft Cost Estimate (14th February 2000)

5. Environmental Conditions

The Augusta Power Stations operate according to the Environment Protection Act 1993 (SA).

The EP Act 1993 states the principle of a "general environmental duty".

> *Part 4—General environmental duty*
> *25—General environmental duty*
> *(1) A person must not undertake an activity that pollutes, or might pollute, the environment unless the person takes all reasonable and practicable measures to prevent or minimise any resulting environmental harm.*

The operation of the coal handling and storage system is an authorised activity under an Environmental Authorisation (Licence) under Part 6 of the EP Act provided by the EPA.

EPA Notification of Process Changes

According to the requirements of the Environment Protection Act 1993 and Licence Condition 4.2, the EPA must be notified when there is a proposed change to operating conditions that:

- May increase emissions or alter the nature of pollutants or waste; or
- May increase the risk of environmental harm; or
- Would relocate the point of discharge of pollution or waste.

Further, in accordance with section 83 of the Act, the EPA must be notified when serious or material environmental harm is caused or threatened.

FP commits to ensuring compliance with these obligations.

Licence Conditions

Note: *Environmental Authorisation 13006 is being reviewed (as of March 2017) by SA EPA and FP and is being amended to reflect the revised environmental monitoring requirements during the demolition and rehabilitation period. This section will be updated when the revised conditions have been finalised.*

The Northern and Playford EPA licence, (13006) states specifically the activities for which APS undertakes.

> *Licensed Activities*
>
> *The Licensee(s)*
>
> *-Flinders Power Holdings GmbH, Flinders Labuan (No 1) Ltd, Flinders Labuan (No 2) Ltd is (are) authorised to undertake the following activities of environmental significance under Schedule 1 Part A of the Environment Protection Act 1993 (the Act), subject to the conditions of licence set out in the attached pages:*

1(5)(a)	*Petroleum storage*
2(1)	*Abrasive blasting*
7(3)(C)	*Crushing, grinding or milling works (rock, ores or minerals)*
7(5)	*Coal Handling & storage*
8(2)(a)	*Fuel burning coal or wood*
8(7)	*Discharges to marine or inland waters (heat or antibiotic or chemical water treatments)*
8(6a)(a)	*Desalination plant that discharges wastewater to the marine environment*

Licence 13006 contains the following condition relating to dust on site:

S-9 Dust Prevention

The licensee must:

- *Take all reasonable and practicable measures to prevent dust leaving the Premises;*
- *Develop a Dust Management Plan to the satisfaction of the EPA; and*
- *Implement the Dust Management Plan approved in writing by the EPA (or any revised plan approved in writing by the EPA).*

Accordingly, Augusta Power Stations operates the former coal stockpile, coal handling plant and the Ash Storage Area in such a manner to reduce its effects on the environment, including the roads to and from the stockpile, and the levees on the ash storage area.

The following Licence condition relates to ambient air monitoring:

3.1 Ambient Monitoring and Reporting (U-124)

The Licensee must:

3.1.1 Continuously monitor ambient sulphur dioxide and ambient nitrogen dioxide at a location (or locations) within the Port Augusta township approved in writing by the EPA:

3.1.2 Monitor ambient particulate concentrations (TSP and PM10) one day in six at a location (or locations) within the Port Augusta township approved in writing by the EPA;

3.1.3 Undertake an investigation to determine the source of any exceedance(s) and provide to the EPA the outcomes of the investigation if following levels are exceeded at any monitoring location(s):

a. *Sulphur dioxide: 571 micrograms per cubic metre (determined as a one hour average);*
b. *Nitrogen dioxide: 246 micrograms per cubic metre (determined as a one hour average);*
c. *Particles (PM10): 50 micrograms per cubic metre (determined as a one hour average);*

3.1.4 Notify the EPA within seven days of any sulphur dioxide exceedence, as measured at the monitoring location(s) referred to in sub-condition (1); and

3.1.5 *Submit to the EPA on a monthly basis a summary of monitoring results for ambient particles (TSP and PM10), ambient nitrogen dioxide and ambient sulphur dioxide.*

The Railway EPA Licence (13011) contains condition S8, which states the licence holder must take all reasonable and practicable measures to prevent dust emissions, and includes the creation of a Dust Management Plan.

Ambient Dust Monitoring – TSP & PM10

Note 1: *Environmental Authorisation 13006 is being reviewed (as of March 2017) by SA EPA and FP and is being amended to reflect the revised environmental monitoring requirements during the demolition and rehabilitation period. This section will be updated when the revised conditions have been finalised. This will include the development of a specific TARP for the Ash Storage Area.*

To monitor the ambient air dust levels across the community there are a number of High Volume Air Samplers (HVAS) at strategic locations in Port Augusta and Stirling North. There are two types of HVAS, a total suspended particulate (TSP) type which samples all of the dust in the air and another for particulate matter 10 microns and smaller in diameter (PM_{10}). These samplers are set to run every sixth day in accordance with licence conditions. The results are provided to the EPA and the Port Augusta City Council on a monthly basis.

Note 2: *As a result of the dust event of 1st and 2nd January 2017, the EP issued an Environment Protection Order. Requirement D of the Order required: 'Increase the frequency of sampling conducted pursuant to condition 3.1.2 (TSP and PM10) Ambient Monitoring and Report (U-124) of the Licence to daily rather than one day in six, at the approved locations within the Port Augusta Township. The results of such sampling must be provided to the EPA within 1 business day following the Licensees' receipt of the results. (Compliance Date: Forthwith)'*

Flinders commenced daily sampling on Wednesday 11th January 2017, following maintenance and re-calibration of the units. Results have been consistently provided via email to the EPA since that time.

Speciation

One of the challenges in undertaking ambient monitoring for dust within the community is differentiating coal and ash particles derived from operational activities as distinct from natural regional dust. A key differentiator is wind direction and strength. The wind direction and strength for the day of measurement is captured within data reports, and used to assist determine whether particles may have derived from the APS site. Another method used is colour – a filter paper of a red colour indicates a high contribution of natural regional dust, and is particularly noticeable during regional dust storms. A filter paper of a grey colour can indicate a contribution from the ash dam, however the natural urban dust, and wood smoke from domestic heaters, tends to also be grey in colour. A very dark grey/black tinge can indicate the contribution from coal dust. The township of Port Augusta and surrounding communities is located in a desert climate and is subject to frequent dust storms from the arid interior. The analysis of historical high ambient dust results against weather events shows a strong correlation with regional conditions.

Another key data input is local knowledge. On certain days there may be local activities eg development of the Central Oval, or mowing at the Lea Memorial Oval) that may be a key contributor to local dust. These conditions are noted on the monitoring results database.

Along with ambient air dust sampling, dust collected from various locations around the site, including along the railway and around the Ash Storage Area and town have been sampled to determine the coal and ash content.

Other methods to identify the sources of dust collected at monitoring stations are continually investigated.

The results of speciation work undertaken by the EPA or Flinders Power will be taken into account and the plan may be updated to reflect any requirements arising from these.

In late 2016/early 2017 the EPA conducted dust sampling and analysis at a monitoring station located adjacent to the Ash Dam, and from a station within the Port Augusta community. The results of the sampling, including assessment from SA Health, are available on http://www.epa.sa.gov.au/business_and_industry/industry-updates/flinders-power-port-augusta. The results of the analysis indicated that whilst the toxicity of the ash particulate is considered low, the particle size warrants proactive management of dust from the ash dam.

6. Dust Management Plan (DMP)

Plan Stakeholders - Roles and Responsibilities

Positions in Flinders Power have been identified and assessed as having direct influence over parts of the process involved with managing dust on the APS site. The responsibilities of such positions are described here to ensure clear and progressive lines of accountability and communication for the purpose of implementing this Plan.

Facility Manager APS

- Approve and support the DMP. Ensure ongoing compliance with the DMP;
- Authorise the resources required to implement this plan;
- Custodian of the 'Ash Storage Area Contingency Plan – Extreme Weather Monitoring & Response Plan' – Appendix E.
- Consult with the Specialist Environmental Services to determine appropriate environmental management strategies and contingency measures required by the DMP;
- Install and maintain dust management infrastructure, including dust suppression sprays and cannons;
- Report actual and potential environmental incidents;
- Ensure sufficient resources (personnel, materials and equipment) are available to respond to high dust events;
- Consult with the Specialist Environmental Services with respect to the management of contractors for decommissioning, demolition and rehabilitation activities that may affect the integrity and effectiveness of the DMP;
- Maintain dust management infrastructure to ensure ongoing effectiveness and reliability;
- Liaise with environmental and allied Regulators;
- Notification to Regulators of any adverse dust events;
- Notification to Regulators of any material changes to dust management controls; and
- Consult and liaise with community stakeholders, including proactive notification of actual/potential dust events.

Program Manager – Flinders Sites

- Review and approve the DMP;
- Provide advice and/or assistance to the Facility Manager APS to ensure the DMP is appropriately implemented in the workplace;
- Liaise with environmental and allied Regulators;
- Ensure the FP website has current and accurate environmental monitoring data; and
- Consult and liaise with community stakeholders.

Specialist Environmental Services

- DMP document owner;
- Provide advice and or assistance to the Facility Manager APS to ensure the DMP is appropriately delivered and followed in the workplace;
- Ensure dust and weather monitoring equipment is functional and accurate.
- Collate and deliver daily environmental data, including 5-day weather forecast, dust risk rating, BOM dust alerts, BOM severe weather alerts and previous period environmental monitoring data;
- Ensure proactive and reactive notification mechanisms are in place;

- Audit activities associated with the DMP on a regular basis;
- Maintain, interpret and communicate dust monitoring results;
- Investigate DMP non-conformances or dust quality exceedences;
- Determine appropriate management strategies and implement contingency measures in consultation with the relevant manager/supervisor;
- Complete all required Internal and External reports required by the DMP;
- Ensure the Incident Management System contains the details of incidents and complaints related to the DMP;
- Service and maintain ambient monitoring equipment in accordance with OEM instruction and the Environmental Monitoring Plan;
- Publishing and provision of real-time and monthly data reporting to the EPA and community.

Environmental Coordinator

- Manage stockpile and Ash Storage Area operations in accordance with the provisions of this plan, in order to minimise the creation of fugitive dust;
- Support the Facility Manager APS to implement the actions of the DMP with the assistance of the Specialist Environmental Services; and
- Coordinate sampling of PM10 and TSP high volume samplers;
- Ensure dust monitoring equipment is functional and accurate;
- Collation and reporting of environmental monitoring data;
- Support/back-up resource for Specialist Environmental Services; and
- Consult with the Specialist Environmental Services to determine appropriate environmental management strategies and contingency measures required by the DMP.

FP Project Management Team

- Manage stockpile and Ash Storage Area operations in accordance with the provisions of this plan, in order to minimise the creation of fugitive dust.

Land Management Team

- Maintain the Ash Storage Area to reduce dust generation;
- Inspect the Ash Storage Area, levees and batters, along with site roads, and perform dust suppression actions as required;
- Wash down coal dust and spillages from underneath conveyor structures and ash from under the boiler area;
- Maintain site vegetation; and
- Perform any other dust mitigation actions around site as necessary.

Alliance Team members (FP, McMahons Services and subcontractors)

- Implement Alliance Plans including Environmental Management Plan;
- Ensure appropriate dust management controls are applied for specific demolition activities e.g. charge felling;
- Undertake operation activities in accordance with relevant Flinders Power policies, procedures, management protocols, plans, statutory, licence and contract requirements;
- Implement appropriate environmental management measures; and
- Report actual and potential environmental incidents to the Facility Manager and Specialist Environmental Services via their supervisor.

Implementation and Control Actions

The Implementation and Control Actions in the DMP are based on the following specific items:

- Design and use of plant and equipment so as to control and minimise dust;
- Development and application of work procedures which reduce the potential for dust;
- Use of dust suppression techniques on the Ash Storage Area, coal storage and handling areas; and
- Development and implementation of auxiliary techniques to monitor weather conditions affecting site, in particular the Ash Storage Area in order to implement the Trigger Action Response Plan (TARP).

The following Tables (1 to 5) document the potential coal air quality/dust impacts with associated control plans.

This has been developed by utilising the 2014 Aspects and Impacts Register as the basis to identify the locations or activities with the highest risk of dust generation on the site, and updating these to reflect the requirements during closure activities.

The locations/activities have been ranked according to the highest residual risk for the environmental aspects contained in each.

Table 5 ‘Aspects and Control Action 5: Demolition Activities’ specifically references the Alliance Project Risk Register which relates to dust control for demolition activities.

Table 1. Aspect and Control Action 1: Coal Stockpile Operations

The following action plan relates to the revegetation of the former stockpile area.

Augusta Power Stations Environmental Aspects and Impacts Register																
Ref No	*Responsible Dept./Branch/Section*	*Activity/Location*	*Enviro Aspect*	*Enviro Impact*	*Legal & other requirements*	*Inherent Risk*			*Operational Controls*		*Residual Risk*			*Monitoring*	*Training*	*Note*
			(cause)	*(effect)*		*Consequence*	*Likelihood*	*Rating*	*Primary*	*Support*	*Consequence*	*Likelihood*	*Rating*			
	FPP Project Management Team	Civil works on stockpile pad. Preparation for revegetation	Coal dust & wind blown soil	Air quality	EPP (Air Quality)	Major	Likely	Extreme-8	Dust Management Plan, Access to area during low wind speeds Water truck	Irrigation water sprinkler system	Minor	Possible	Mod-5	wind direction/speed, ambient monitoring, ad-hoc dust monitoring	Operator training	Closure period
23	Environmental Services	Coal stockpile management	Coal dust	Air quality	EPP (Air Quality)	Major	Likely	Extreme-8	Dust Management Plan, Sprays, Water truck,	Project Group	Minor	Unlikely	Low-4	wind speed/direction, ambient monitoring	Operator awareness	General conditions

General Control Matrix

Area	Potential impact	Potential contaminants	Rehabilitation Controls	Responsible personnel
Coal Stockpile and Tower Pad	Heavy machinery generating dust while operating on or near the stockpile where coal is present during revegetation activities and prior to vegetation becoming established. Air quality/dust movement off site due to wind speed and direction.	Coal dust, soil and surface dust.	Surface ripping during low winds (<35km/hr) Cease work when wind speeds increase (>35km/hr) Use of water truck to wet surface Allowing surface to harden Installation of irrigation system Revegetation of pad surface. Daily monitoring by Project Manager and Land Management Team. Additional revegetation as required.	FPP Project Management Team
			Use of dust suppression chemicals on open areas as required.	Environmental Coordinator
			Daily weather reports for wind speed & direction forecasting and provide advice to team.	Specialist Environmental Services

Table 2. Aspects and Control Action 2: Ash Storage Area Management

The following action plan relates to the management of the Ash Storage Area (ASA).

Augusta Power Stations Environmental Aspects and Impacts Register																	
Ref No	*Responsible Dept./Branch/Section*	*Activity/Location*	*Enviro Aspect*	*Enviro Impact*	*Legal & other requirements*	*Inherent Risk*			*Operational Controls*		*Residual Risk*			*Monitoring*	*Training*	*Note*
			(cause)	*(effect)*		*Consequence*	*Likelihood*	*Rating*	*Primary*	*Support*	*Consequence*	*Likelihood*	*Rating*			
5	Environmental Services	Ash storage dam management	Dust (Ash) emissions	Air quality	EPP (Air Quality)	Major	Almost certain	Extreme-9	Dust Management Plan, TARP, dust suppression chemical application to surface and levees, real-time PM10 montoring at ash dam and within community, text alerts, BOM monitoring of weather predictions.	APS Ash Storage Dam Inspection Checklist, JSP234 Ash disposal pipe laying, JSP235 Vehicle operation in Ash Pond area	Major	Unlikely	High-6	daily inspections, ambient monitoring, 3 monthly inspections		
212	Environmental Services	Ash storage dam management	Dust (Red sand) emissions	Air quality	EPP (Air Quality)	Major	Almost certain	Extreme-9	Dust Management Plan, TARP, dust suppression chemical application to surface and levees, trained vehicle operators, real-time PM10 montoring at ash dam and within community, text alerts, BOM monitoring of weather predictions.	APS Ash Storage Dam Inspection Checklist, JSP235 Vehicle operation in Ash Pond area	Major	Unlikely	High-6	daily inspections, ambient monitoring, 3 monthly inspections		

General Control Matrix

Area	Potential impact	Potential contaminants	Mitigation measures	Responsible personnel
Ash Storage Area	Generation of dust from the main surface of the Ash Storage Area, including borrow pits on the south side Surface dust from main pipework outfall area Generation of ash dust from the inside of the western levee areas Generation of ash dust from the inside of the Eastern levee areas Southern levee surfaces and batters, including areas where wind-blown ash has settled	Ash dust particles.	Use of dust suppression treatment on the surface of the ASA – Refer Appendix A and B. Trigger Action Response Plan *(Refer to section 7)*. Use of water carts and additional dust suppression on banks and roadways as required Daily visual inspection and remedial works as required.	Facility Manager APS Environmental Coordinator McMahon Services Specialist Environmental Services Land Management Team Environmental Coordinator
Ash Storage Area – Implementation of long-term rehabilitation plan	Generation of red dust from the borrow pit during excavation and haulage Generation of surface red dust from haul roads to/from the borrow pit and the Ash Storage Area Generation of red dust from topsoil fingers and ash dam surface after	Soil ‘red dust’ particles	Monitoring of dust generation and use of dust suppression measures during the implementation of the long-term rehabilitation plan for the Ash Storage Area. Refer to Appendix D: Fugitive Dust Trigger Action Response Plan (Rev 1 5th January 2017).	Facility Manager APS McMahon Services

	spreading			

Table 3. Aspects and Control Action 3: Coal Conveyor System and General Site

The following action plan relates to the management of dust around the conveyor system and general site.

Augusta Power Stations Environmental Aspects and Impacts Register																	
Ref No	*Responsible Dept./Branch/Section*	*Activity/Location*	*Enviro Aspect*	*Enviro Impact*	*Legal & other requirements*	*Inherent Risk*			*Operational Controls*		*Residual Risk*			*Monitoring*	*Training*	*Note*
			(cause)	*(effect)*		*Consequence*	*Likelihood*	*Rating*	*Primary*	*Support*	*Consequence*	*Likelihood*	*Rating*			
62	Flinders Project Services	Coal bin storage	Coal dust	Air quality	EPP (Air Quality)	Moderate	Possible	High-6	Enclosure, wash down of built up dust	Maintenance routines	Moderate	Rare	Mod-4	ambient monitoring, maintenance records		

General Control Matrix

Area	Potential impact	Potential contaminants	Mitigation measures	Responsible personnel
Conveyors	Residual coal dust generation from conveyors and bins around the station.	Coal dust.	Enclosed structures. Dust wash down (completed during Make Safe period). Defect /hazard reporting. Routine site inspection.	Environmental Coordinator
Open areas	Generation of dust from surfaces, such as underneath conveyors and towers where coal has spilled or dust settled.	Coal dust and surface dust.	Wash down with water hose when required.	Land Management Coordinator

Table 4. Aspects and Control Action 4: Site Roads (General Conditions)

The following action plan relates to the management of dust roadways around site.

Augusta Power Stations Environmental Aspects and Impacts Register																
Ref No	*Responsible Dept./Branch/Section*	*Activity/Location*	*Enviro Aspect*	*Enviro Impact*	*Legal & other requirements*	*Inherent Risk*			*Operational Controls*		*Residual Risk*			*Monitoring*	*Training*	*Note*
			(cause)	*(effect)*		*Consequence*	*Likelihood*	*Rating*	*Primary*	*Support*	*Consequence*	*Likelihood*	*Rating*			
21	Environmental Services	Road traffic	Dust emissions	Air quality	EPP (Air Quality), EPA Licence 13006 Cond No 1.1	Moderate	Possible	High-6	Speed limits on-site Routine road washing		Minor	Unlikely	Low-4	Site inspections		

General Control Matrix

Area	Potential impact	Potential contaminants	Mitigation measures	Responsible personnel
Roads	Generation of dust from road surfaces.	Coal dust and surface dust.	Water spray with water truck. Street sweeper (hired as required)	McMahons Facility Manager APS

Table 5. Aspects and Control Action 5: Demolition Activities

The following action plan relates to the management of dust during specific demolition activities.

Augusta Power Stations - Demolition Environmental Aspects and Impacts																	
Ref No	*Responsible Dept./Branch/Section*	*Activity/Location*	*Enviro Aspect*	*Enviro Impact*	*Legal & other requirements*	*Inherent Risk*			*Operational Controls*		*Residual Risk*			*Monitoring*	*Training*	*Note*
			(cause)	*(effect)*		*Consequence*	*Likelihood*	*Rating*	*Primary*	*Support*	*Consequence*	*Likelihood*	*Rating*			
	McMahons	Road traffic during demolition activities, removal of material off site	Dust emissions	Air quality	EPP (Air Quality), EPA Licence 13006 Cond No 1.1	Moderate	Possible	High-6	Pre-task JSEA, Site vehicle speed limits. Routine road washing with water truck	McMahons - Demolition, Environmental Management & Hazardous Materials Plans	Minor	Unlikely	Low-4	Ambient dust monitoring, site inspections/supervision		
	McMahons	General Demolition Activities	Dust emissions	Air quality	EPP (Air Quality), EPA Licence 13006 Cond No 1.1	Major	Likely	Extreme-8	Pre-task JSEA, Water spray with water truck. Water areas with water hoses.	McMahons - Demolition, Environmental Management & Hazardous Materials Plans	Moderate	Unlikely	Mod-5	Ambient dust monitoring, site inspections/supervision		
	McMahons	General Civil Works	Dust emissions	Air quality	EPP (Air Quality), EPA Licence 13006 Cond No 1.1	Major	Likely	Extreme-8	Pre-task JSEA, Water spray with water truck. Water areas with water hoses.	McMahons - Demolition, Environmental Management & Hazardous Materials Plans	Moderate	Unlikely	Mod-5	Ambient dust monitoring, site inspections/supervision		
	McMahons	Stack Felling	Dust emissions	Air quality	EPP (Air Quality), EPA Licence 13006 Cond No 1.1	Major	Likely	Extreme-8	Pre-task JSEA, Water spray with water truck. Industrial mist fans	McMahons - Demolition, Environmental Management & Hazardous Materials Plans	Moderate	Unlikely	Mod-5	Ambient dust monitoring, site inspections/supervision		
	McMahons	Bin Felling	Dust emissions	Air quality	EPP (Air Quality), EPA Licence 13006 Cond No 1.1	Major	Likely	Extreme-8	Pre-task JSEA, Water spray with water truck.	McMahons - Demolition, Environmental Management & Hazardous Materials Plans	Moderate	Unlikely	Mod-5	Ambient dust monitoring, site inspections/supervision		

Alliance Project Risk Assessment Register – Dust from demolition activities – extract:

Asset Issue or Improvement Opportunity						Inherent Risk Rating			Residual Risk Rating					Proposed Mitigation of Risk Exposure / Improvement Actions			Target Risk Rating		
Owner	Category	Issue	Cause	Potential Consequences	Exposure Type	Consequence	Likelihood	Rating & Priority	Current Approach (Existing Controls)	Effectiveness	Consequence	Likelihood	Rating & Priority	Risk Reduction Treatment or Asset Improvement Strategic or Approved Action	Action Owner	Planned Completion Date	Consequence	Likelihood	Rating & Priority
RT/TC	Environment	Excessive release of dust during demolition activities	Mass collapse of structure, weather conditions - wind increase. Removal of bitumen exposing earth beneath, plant movement on site generating dust.	Damage to the environment via dust pollution, loss of flora / fauna, loss of program, litigation / financial / company branding.		2. Major	C. Likely	High 7	Water shall be utilised for the purpose of dust suppression during demolition activity via air misters, spotters with milk hoses suppressing dust during works as well as pre-wetting materials before demolition activity commences, water cannons built into large excavators (PC1250) spraying during demolition activity. Plant movement minimised where possible to prevent excessive generation of dust. If required water cart utilised to suppress / seal ground area. Reduced activity during high winds. Dust monitoring using visual and electronic monitors.	Effective	3. Moderate	D. Possible	Medium 16				3. Moderate	D. Possible	Medium 16

General Control Matrix (for Table 5. Aspects and Control Action 5: Demolition Activities)

Area	Potential impact	Potential contaminants	Mitigation measures	Responsible personnel
Stack Felling	Generation of dust.	Coal dust, ash and surface dust.	Vehicle speed limits. Water shall be utilised for the purpose of dust suppression during demolition activity via air misters, spotters with milk hoses suppressing dust during works as well as pre-wetting materials before demolition activity commences, water cannons built into large excavators spraying during demolition activity. Plant movement minimised where possible to prevent excessive generation of dust. If required water cart utilised to suppress / seal ground area. Reduced activity during high winds. Dust monitoring using visual and electronic monitors. Community and stakeholder engagement and information sharing of demolition events with potential for significant dust generation which may have an adverse effect on the community.	McMahons Facility Manager APS
Coal Bin Felling	Generation of dust.	Coal dust, ash and surface dust.		McMahons Facility Manager APS
General demolition activities	Generation of dust.	Coal dust, ash and surface dust.		McMahons Facility Manager APS
General civil works	Generation of dust.	Coal dust, ash and surface dust.		McMahons Facility Manager APS
Site traffic for demolition material removal	Generation of dust.	Coal dust, ash and surface dust.		McMahons Facility Manager APS

7. Ash Storage Area – Dust Management

The current approach for dust management on the Ash Storage Area (ASA) utilises regional weather predictions of wind speed and direction to inform activity planning and the implementation of dust management measures on the ASA.

Historically, infrequent events have occurred whereby rainfall on the ASA during the spring and summer months has caused the salt crust on the surface, created by surface sweater/ash slurry flooding, to deteriorate and allow ash to become airborne in strong winds.

Whole of ASA Dust Suppression Treatment

Conditions on the ASA since closure has shown that the normal dust suppression activities used (coffer dam building and surface flooding) have damaged the ASA surface, allowing fine ash to be lifted from the surface. A review of the dust suppression methods used on the ASA through August – October 2016 determined that the optimal method of dust suppression is to seal the whole of the ASA surface with a dust suppression treatment.

An initial area of 15Ha in the middle of the ASA was sealed with dust suppression chemical in August 2016 which was applied by crop duster airplane. The results of the sealing of this initial area were positive and after severe weather events during September and October 2016 causing large ash lift off events from the remainder of the ASA and dangerous conditions for machinery on the ASA levee banks it was decided to investigate the sealing of the whole of the main ASA.

A risk assessment and proposal for the sealing of the ASA was developed in collaboration with the EPA and provided for review on the 21st October 2016. Approvals were provided and the project was completed on 22nd November 2016.

Severe storm activity in the period 24-28th December 2016 impacted the dust suppressant seal, which rapidly dried and led to a dust event on the 1st and 2nd January 2017.

The use of a dust suppressant seal is an interim measure prior to the completion of the full rehabilitation program.

Trigger Action Response Plan – Ash Storage Area

A Trigger Action Response Plan (TARP – refer Appendix D) has been developed, incorporating the “stoplight’ performance monitoring tool and visual site inspections as the triggers. The TARP will hold two key functions:

- To monitor sealant condition and determine if further treatment is required to control ash dust generation from the Ash Storage Area; and
- To monitor the generation of ‘red dust’ during the completion of the long term rehabilitation plan, including soil trafficking, emplacement and throughout the germination period of vegetation.

A newly installed ambient dust monitoring system will also be used to inform site staff of “real time” airborne dust levels around the ASA and in two community monitoring sites. These “real time” levels

will be used in conjunction with site visual observations to determine escalating trigger points within the TARP.

The mitigation responses will be drawn from the Aspect Control Actions appropriate for the identified triggers. The site Incident Management System (IMS) will be used as the action assignment and data recording tool.

This TARP will be communicated to the appropriate site stakeholders to ensure appropriate actions are taken to mitigate dust from specific identified areas/activities on site.

The Ash Storage Area has been identified as the key area for dust management and a three tiered process using wind forecasts has been developed, with a daily weather forecast utilising a Red-Yellow-Green “stoplight” type format. Daily weather reports are to be reviewed for wind speeds forecasted to be over 35kmh in the proceeding days and a weather forecast chart will be used to identify times of risk of generating dust.

The chart below shows an example of the weather forecast prepared and communicated daily to site leaders.

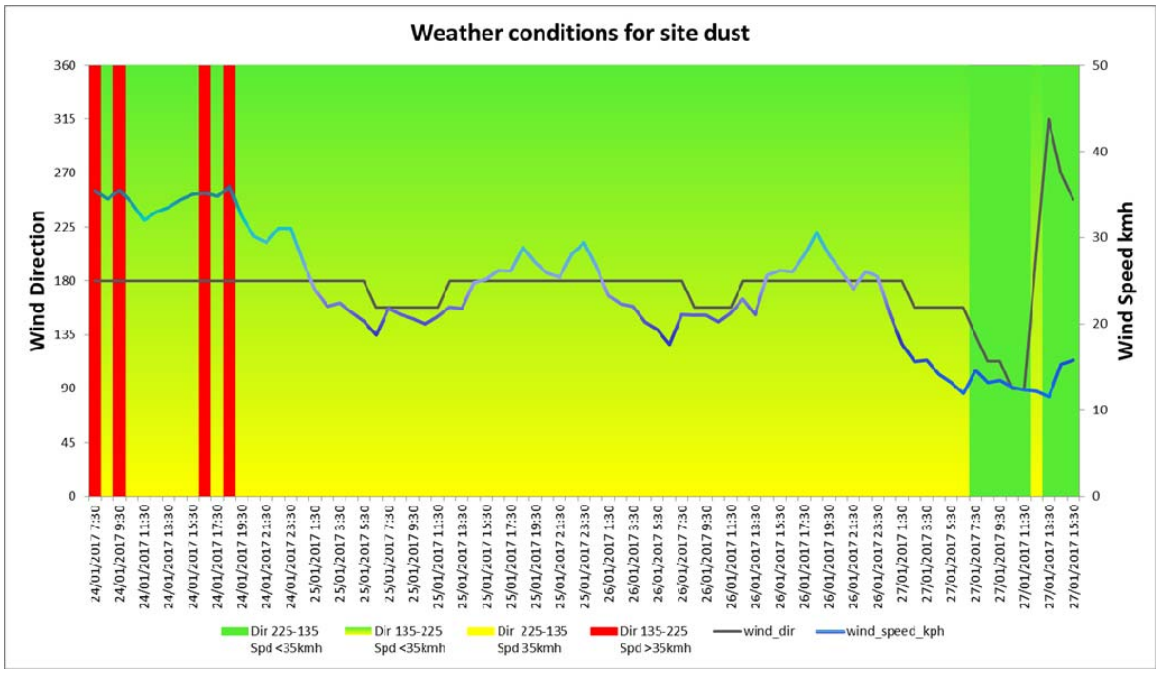

Figure 4 Example ‘stoplight’ TARP system for weather warning.

The ‘stoplight’ format will be used for a green band to show when potentially dust generating activities with heavy plant can take place. A yellow band indicates when caution is required, and a red band indicates time where it is likely that site activities may need to cease.

The daily report is supplemented with the predicted weather conditions (sourced from weatherzonepro) for the next 6 day forecast period. An example is provided in Figure 5 below.

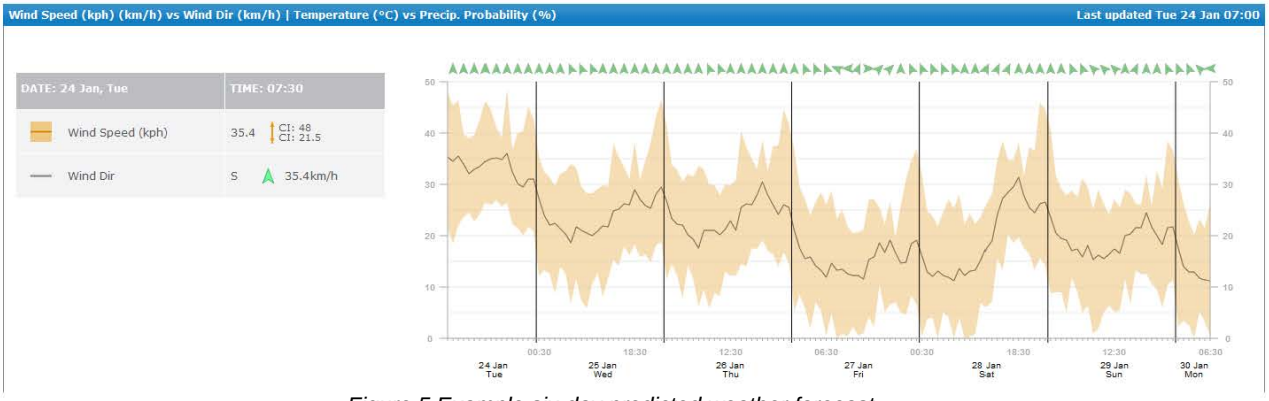

Figure 5 Example six-day predicted weather forecast

Further, Flinders has access to the Bureau of Meteorology dust warning system, which is checked daily, and alerts issued with the daily environmental report. An example dust warning is provided in Figure 6 below.

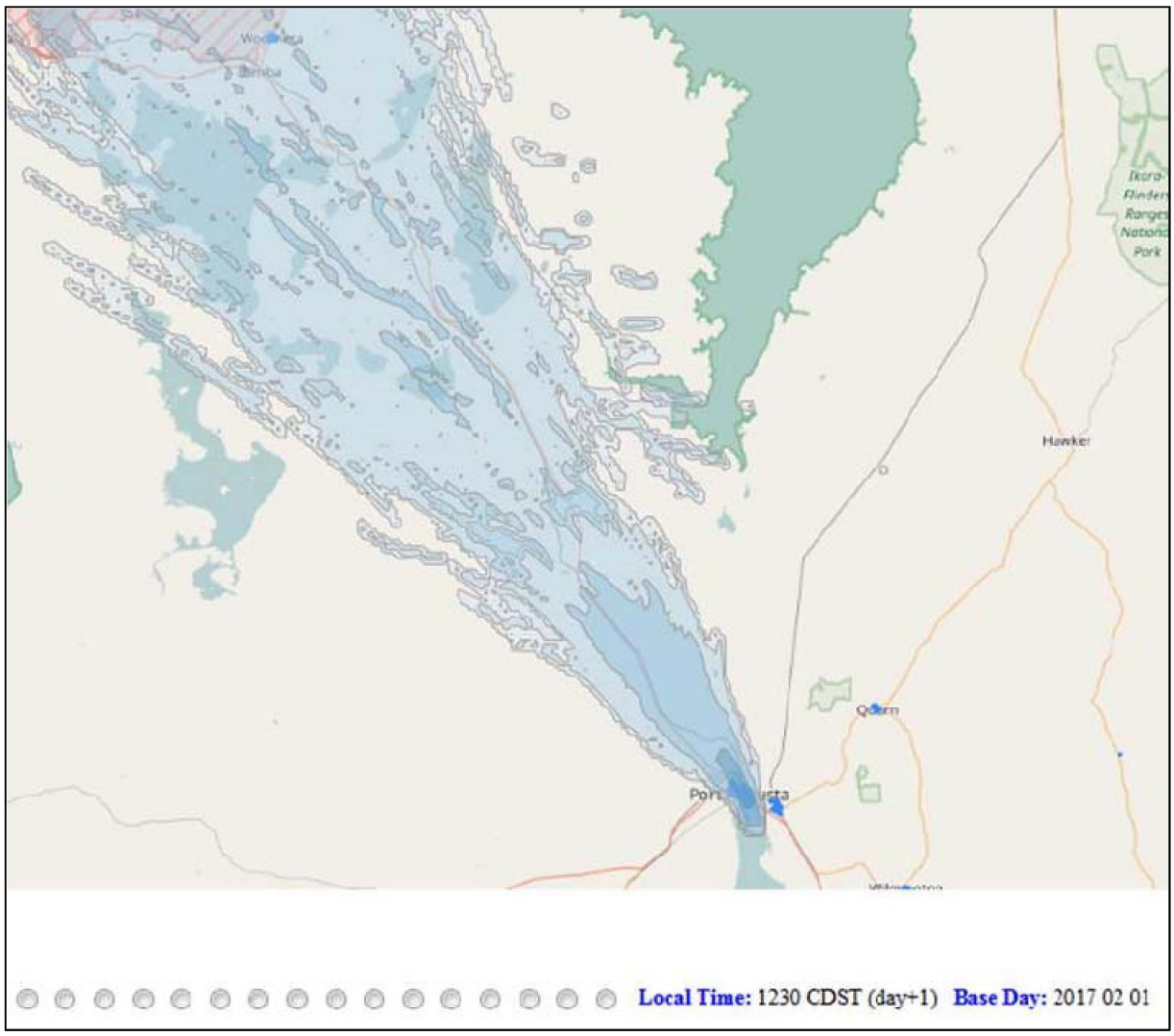

Figure 6 Example BOM dust warning

Preparation forextreme weather events is documented in Appendix E: Ash Storage Area – Extreme Weather Monitoring & Response Plan.

On high wind speed days the following example precautions will be undertaken where appropriate. Full details are provided in the TARP (Appendix D)

- Ensure safety of site staff and visitors;
- Monitor wind speeds using Bureau of Meteorology data;
- Cease work activities on the Ash Storage Area;
- Surface inspections to determine if ash is blowing off;
- Targeted action for high risk accessible areas; and

- Notify stakeholders and the community if required (Port Augusta City Council, community and SA EPA), in accordance with Section 5 of the APS Environmental Closure & Post-Closure Plan.

When a community complaint regarding dust is received by the company, activities on the Ash Storage Area will be reviewed and ceased if deemed appropriate, by the Flinders Power Facility Manager or delegate.

8. Former Coal Stockpile Area– Dust Management

The NPS Coal Stockpile pad has been rehabilitated and revegetation of the surface is in progress.

Whilst the vegetation is established the existing Coal Stockpile TARP will be followed, as below.

Trigger Action Response Plan –Stockpile Revegetation

A (TARP) has been developed for revegetation work on the stockpile, incorporating the “stoplight’ performance monitoring tool and visual site inspections as triggers.

Stockpile revegetation has been identified as a key area for dust management and the stoplight” Red-Yellow-Green weather forecast will also be used during activities on the stockpile pad.

The ‘stoplight’ format will use a Green band to show when potentially dust generating activities with heavy plant can take place according to the following weather conditions:

> Any activities during a wind speed below 20kp/h (6 m/s or 11 knots) from the SOUTH EAST to SOUTH WEST.

A Yellow band will show the hours when potentially dust generating activities with heavy plant can take place according to the following:

> Any activities during a wind speed over 20kp/h (6 m/s or 11 knots) from any wind direction other than from the SOUTH EAST to SOUTH WEST.

A Red band will show the hours when potentially dust generating activities with heavy plant cannot take place:

> Any movement activities during a wind speed over 20kp/h (6 m/s or 11 knots) from the SOUTH EAST to SOUTH WEST.

9. Dust Monitoring and Evaluation

Note: *Environmental Authorisation 13006 is being reviewed (as of October 2016) by SA EPA and FP and is being amended to reflect the revised environmental monitoring requirements during the demolition and rehabilitation period. This section will be updated when the revised conditions have been finalised.*

Ongoing dust monitoring, by either visual evaluation of ash/coal dust generation on site or by interpretation of the results from the dust monitoring network, will determine if dust mitigation measures are effective or required in specific circumstances.

Groups responsible for inspections are described in the Action tables and TARP.

The monitoring of real-time PM10 data from the boundary monitors of the Ash Storage area is presented on a screen within the Flinders Power office on site, and monitored by both Flinders Power and McMahon Services personnel. A summary of data is provided in the daily environmental report.

Access to real-time dust monitoring information for the Ash Storage Area and community monitoring stations is made available to the EPA. A summary of real-time data for the community PM10 monitors is presented on the Flinders Power website and made openly available to the community.

The monitoring of real-time PM10 data from Stirling North and Lea Memorial Oval is verified daily (M-F) by the Specialist Environmental Services.

The monitoring of ambient high-volume filter papers within the Port Augusta community is conducted daily by the site Environmental Coordinator.

10. Community and Stakeholder Engagement

Community and stakeholder engagement is detailed in the APS Closure and Post Closure Environmental Plan.

A summary of these mechanisms are outlined below.

Mechanism	Target Group							Posted on FP website?	Frequency	Notes
	Residents	PACC	MP	Media	EPA	NRM Board	Special-interest groups			
Weekly progress report		X	X		X			No	Weekly	A summary of activities at the site, including demolition and ash dam rehabilitation
Face-to-Face meetings / site visits		X						N/A	Monthly	Monthly meetings with PACC CEO and Mayor, when available.
Annual environmental presentation		X						Yes	Annual	Annual presentation to PACC – open public forum.
Media release/ Infomercials	X			X				Yes	Ad-hoc	Strategic media release e.g. felling of PPS A station stack
Works Progress Fact Sheet	X	X	X	X				Yes	Monthly	A monthly progress update. Letter drop
Focus topic fact sheet	X	X	X	X	X	X	X	Yes	Ad-hoc	A brochure on a particular topic (e.g. ash dam, Playford A building demolition). Letter drop.
Flinders Power website	X	X	X	X	X	X	X	Yes	Regular updates	Information portal. Links to FP YouTube account. FP contact details.
Flinders Power hotline & email	X			X			X	Yes	N/A	All community complaints are logged.
Special-interest presentations							X	N/A	On request	Community presentations or site visits to be conducted on request.
Community site visits	X							N/A	On request	Invitations for community

				members to tour site on ad-hoc basis
Community forum/ reference group	X		Ad-hoc	As required basis.

Flinders power is also performing community sentiment monitoring using the following

- Daily media monitoring – print, TV, radio and online
- Complaints hotline & email – central recording
- Facebook – linked with community forums
- FP personnel embedded within the community
- Feedback from SA Government Regulators
- Close relationships with PACC, MP's, local media and community leaders.

10.1 Complaint Management

Community complaints regarding nuisance coal dust and ash are to be dealt with according to the Complaint Handling Procedure contained in Appendix C.

References

Aurecon, 2010. Alinta Northern Power Station, Stockpile Dust Management, Flinders Power, Report ref: 206865-001-01, 9 September 2010

Environment Protection Act 1993 (SA)

EPA Licence 13006 (Northern and Playford Power Station)

EPA Licence 13011 (Leigh Creek to Port Augusta Railway Operations)

Flinders Power Environment & Community Policy (June 2016)

Appendices

Appendix A: Ash Dam Interim Sealing – Proposal 7th November 2016

Appendix B: Ash Dam Interim Sealing – Risk Assessment 2nd st January 2017

Appendix C: Complaint Handling Procedure

Appendix D: Fugitive Dust Trigger Action Response Plan (Rev 1 5th January 2017)

Appendix E: Ash Storage Area – Extreme Weather Monitoring & Response Plan

Appendix C

Complaint Handling Procedure

All complaints received by Flinders Power employees, including security, are handled according to the following steps.

All complaint receivers are required to:

- Collect all details from the complainant (time, location, concerns)
- Repeat back and confirm details with the complainant
- Obtain complainants contact details
- Advise relevant Supervisor immediately

The Facility Manager and the Specialist Environmental Services are to be advised as soon as practicable of receipt of the complaint.

The complainant will be contacted and an investigation of the complaint initiated as soon as practicable of the receipt of the complaint. The investigation typically may include:

- A visit to the complainant to:
    - Observe local dust conditions;
    - Discuss the event with the complainant; and
    - Taking of samples.
- A review of site data from the time of the incident.
- A review of meteorological data.

Following the investigation, the complainant is to receive a written response outlining the investigation procedure and findings. If requested the findings of the investigation will be explained and discussed with the complainant in person.

Details of the complaint, the investigation, management actions implemented and follow up is recorded within the FP Incident Management System.

All media enquiries are to be managed through the approved Flinders Power Media Protocols.

21st October 2016

Sealing the APS Ash Dam Using VITAL Bon-Matt Stonewall- PROPOSAL

Background

A key hazard associated with the management of the Ash Dam is the control of dust. While the Northern and Playford Power Stations were operational, this was achieved by the ongoing pumping of an ash/seawater slurry into the dam. The slurry would find a natural path across the dam, and keep the surface saturated. High spots would effectively self-seal through the formation of a salt crust. During operations risk events would be experienced when heavy rainfall, followed by strong drying winds, would dissolve the crust and lead to the potential generation of dust. Typically however these events would be short-lived until the slurry once again seals the surface. The borrow pits at the southern extent of the ash dam could also be filled, then released to flood out over the ash dam and re-establish the seal.

At cessation of generation on May 9th 2016 it was assumed that a similar management strategy would be successful to control dust until the long-term rehabilitation plans were commenced. The strategy adopted included the building of additional coffer dams at the southern end of the ash dam, filling these with seawater via a newly installed pipeline, then breaching the wall to flood out over the dam. Additional strategies were employed, including the installation of new outfall pipework, construction of new internal levees, the installation of a second water supply pipeline from Playford, and the ongoing use of dust suppressant and water carts.

In August 2016 it was noted that an area of the ash dam adjacent the former slurry discharge point was deteriorating quickly. This area is at a higher elevation and unable to be flooded. Also, a release of water over this area would cause irreversible erosion of the loose surface material and may exacerbate the risk of future dust events. It was decided that a quick solution was required to prevent dust lift-off from the area. Subsequently a 15Ha area was sealed using a cropduster applying Vital Bon-Matt Stonewall to the surface. The application was successful and this area has held well over the previous 2 ½ months, despite extreme weather conditions over the period.

Continued seawater flooding to the east and western sides has created ongoing challenges, including:

- The flood process is causing erosion of the surface layer of ash. Previously the slurry would form a smooth seal. However the use of pure seawater is tending to cause rills and gullies, leading to damage to the surface which is then more susceptible to dry-out and wind erosion.

- The retention of water in the southern coffer dams is undermining the banks, leading to local destabilisation of the banks. On 1st October a failure occurred where a portion of a bank, with an excavator parked on top of it, failed internally to the dam, submerging the excavator.
- Continued flooding is not maintaining sufficient water on the surface. During the hot summer months this will be a risk of dam dry-out leading to additional areas being at risk of wind erosion.
- Plans for the long-term management strategy of the dam are being formed, with capping using locally available topsoil being the preferred option. One of the key risks to construction is the ability to place earthmoving equipment on the dam surface. A trial of a low ground-pressure tractor on 11th October was not successful, highlighting the construction risks due to sub-surface moisture. Commencing the dewatering of the dam and polishing pond surface will assist to mitigate these risks during the construction phase.

Licence Conditions

Thus proposal is developed in accordance with Licence 13006, in particular condition U-251 requiring Flinders Power to 'Develop and Implement Closure and Post-Closure Plan'.

Management Plan

Flinders Power is cognisant of its environmental obligations and is keen to address the issues associated with dust events arising from the ash dam. The alternate management strategy outlined in this proposal entails ceasing the practice of seawater flooding and sealing the entire surface of the ash dam with Vital Bon-Matt Stonewall. The product will be applied using a combination of spraying from the banks and aerial spraying. The application will have the immediate benefit of:

- Reducing the risks associated with dust events;
- Commencing the dam dry-out during the summer months to enable plant access for rehabilitation works; and
- Forming a seal over the ash dam to manage dust generation during the long-term rehabilitation works. Continuing flooding during that period would not be possible. The application of the sealant will ensure that only those areas being actively worked will be exposed for dust generation, and can be readily managed by the work crew.

Vital Bon-Matt Stonewall

The product is manufactured and supplied by Vital Chemicals, an Australian owned and operated company based in Brisbane. The active ingredient is a styrene acrylate copolymer which is a stable inert non-hazardous chemical that acts as a binding agent to form a hard crust once dry. A green dye is used in the product so that the treated areas can be seen. The product has been assessed by independent environmental chemists who have deemed the product as a low risk of toxicity to humans and the environment. The South Australian EPA endorsed the use of the product for the

application across the 15Ha area. The product has been successfully used across a number of sites, including:

Vital Chemicals sent their Environmental Business Development Manager to witness and provide technical support for the application of the product for the 15Ha area. The company provided advice to Flinders Power that they were satisfied with the application of the product and could commend a lifespan of approximately 12months. The Vital Chemicals General Manager/Senior Scientist has also provided ongoing technical support throughout the planning and application of the 15Ha area.

Product technical specifications are provided as attachments to this proposal.

Application Period

Following approval for use there is an approximate 3 week lead time for order and supply of the material. The application process is anticipated to take 3weeks, subject to weather conditions.

Risk Assessment

An environmental and social risk assessment has been conducted for the works, and is provided as an attachment. A safe work method statement will also be prepared to identify the risks to health and safety associated with the application process.

Contingency Planning

Whilst Flinders Power is confident that the use of the dust suppressant will be an effective seal, it is noted that this is the first application of its kind on a large-scale ash dam. Therefore, the ongoing monitoring of the effectiveness of the solution will be critical. Should the control plan not be successful in managing dust, the following contingency measures will be considered and adopted where appropriate and in collaboration with the EPA. In order of preference the following measures will be taken:

1. If discreet areas have not been successfully sealed, apply further product using:
    a. Water cart application from the banks, where at-risk areas can be reached; or
    b. A boom-mounted spray on a buggy; or
    c. Use of a 'pistenbully' all-terrain vehicle with a trailer attachment; or
    d. Use of an aircraft.

2. If the product deteriorates or does not form an effective seal, Flinders will consider:
    a. Re-application of the product; or
    b. Use of an alternate product; or
    c. Acceleration of the long-term rehabilitation plans, targeting areas of high risk for dust generation; or
    d. Reverting to seawater flooding. It should be noted that this is a last resort option, as it will promote the migration of the dust sealant and is unlikely to be successful due to the aforementioned challenges.

Monitoring

The monitoring programs will consist of:

- Daily inspections. During Monday-Friday these inspections are carried out by the Land Management Team. On weekends a general site inspection is carried out by Security. Should any works be required on the weekend the Facility Manager, or delegate, will be available on call.

- Ambient dust monitoring. A revised monitoring program is being finalised, however the conceptual plan is:
    - The installation of a real-time PM10 dust monitoring station at Lea Memorial Oval and Stirling North. These monitoring stations will replace the existing high-volume samplers that operate on a 1:6 day basis in accordance with the existing licence conditions.
    - The installation of 3 x PM10 boundary monitors surrounding the ash dam, to act as real-time indicators of dust risk and inform the Trigger Action Response Plan within the Dust Management Plan. A weather station will also be installed at the boundary to provide real-time wind speed and direction data to inform the TARP.

  The ambient monitoring will provide an indication of the success of the short-term dust suppressant, and will be utilised throughout the rehabilitation works to monitor the management of dust.

Timeline

The anticipated timeline for interim sealing and long-term rehabilitation planning is provided below. Detailed planning is occurring currently, and the following should act as a guide only.

	Oct-16	Nov-16	Dec-16	Q1 2017	Q2 2017	Q3 2017	Q4 2017	2018
Interim Sealing								
Submit proposal to EPA	X							
Prepare & conduct community communication	X							
Conduct sealing application		X						
Commence polishing pond infill works[1]		X	X					
Monitoring								
Select and order ambient monitoring equipment	X							
Receive, install and commission ambient monitoring equipment		X	X					
Ash Dam Rehabilitation								
Select preferred contractor	X							
Commence seed collection	X							
Develop detailed plans & submit to EPA		X						
Approval to commence works			X					
Commence earthworks				X				
Stormwater controls				X				
Conduct seeding					X			
Fertiliser & water application, as required						X	X	
Ongoing monitoring & maintenance, including re-seeding, civil works, fertiliser, water application etc if required							X	X

[1] These works will commence as soon as lake dry-out occurs and it is physically possible to access the area.

Dust Management Plan

Should this proposal be accepted by the SA EPA, a variation will be made to the Dust Management Plan, and the document re-issued for approval.

Community Engagement

Flinders Power acknowledges the strong community interest in the closure program and has been proactively engaging with the local community since the closure announcement in June 2015. Flinders management regularly meets with the Port Augusta City Council and provides a progress update report on a weekly basis. A project newsletter is also circulated and posted on the Flinders Power website on a monthly basis.

The risk assessment has identified community relations as a key risk.

Flinders Power proposes to engage proactively with residents to inform them of changes to the management of the Ash Dam and polishing pond. A newsletter is being prepared to provide the community with background information as to why the change is important, and to educate them of potential risks throughout the rehabilitation works, including:

- Aerial spraying (eg noise from the aircraft and risk controls to prevent overspray);
- Odour from the polishing pond;
- Dust generation while earthworks are being conducted; and
- Noise during earthworks.

Other community engagement mechanisms, such as the development of a community reference group, or conducting community information sessions, will be considered by FP.

The Port Augusta City Council will be briefed on the project proposal. Local media will also be proactively engaged.

Polishing Pond

The risk assessment has identified risks associated with the drying out of the polishing pond. The primary risk relates to odour associated with decaying organic material.

Drying out the polishing pond is an important measure prior to commencing rehabilitation works. As the pond consists of very fine ash, it is assumed that the substrate will be extremely soft and saturated, making access by earthmoving equipment difficult.

To manage this risk, it was anticipated that the following works would be required:

- Remove any remaining floating cenospheres from the boom interceptors at the Hospital Creek outlet;
- Raise the ash dam decant outlets to prevent water flow to the polishing pond;
- Commence drying out of polishing pond;

- Commence progressive in-fill of the pond using ash sourced from the borrow pit walls at the southern end of the ash dam.
    - Utilise dust suppressant techniques on the borrow pit areas to prevent the generation of dust (water carts and dust suppressant chemical application).
    - Utilise dust suppressant techniques (water carts) to minimise the generation of dust along haul roads between the ash dam and the polishing pond, as required;
- Seal the ash cover within the polishing pond with dust suppressant;
- Place a topsoil layer over the surface;
- Direct seed; and
- Irrigate and fertilise area as required.

Detailed rehabilitation planning for the polishing pond has commenced in conjunction with the contract partner McMahon Services. Planning works for the polishing pond will be a priority and will commence as soon as physically possible to do so.

Progressive sealing with ash from the banks will occur as the polishing pond progressively dries.

Alternate measures to reduce the risks associated with odour will be investigated.

Ash Dam Rehabilitation

Detailed rehabilitation planning for the ash dam has commenced in conjunction with the contract partner McMahon Services. Project concepts have been provided to the EPA.

Attachments

- Risk Assessment – Ash Dam Interim Sealing
- MSDS Report – Vital Bon-Matt Stonewall
- Environmental Assessment of Vital Bon-Matt Stonewall (Simmonds & Bristow, August 2012)
- Review of Aquatic Ecosystem Risks Associated with the use of Erosion and Dust Control Products (Vital Bon-Matt P47-VR1 and Vital Bon-Matt Stonewall)in Western Queensland (Gauge Industrial and Environmental Pty Ltd, June 2015)
- Vital Bon-Matt Stonewall Data Sheet

ASH STORAGE AREA INTERIM SEALING

AUGUSTA POWER STATIONS - 2nd JANUARY 2017

Risk Identification							Inherent Risk Rating			Residual Risk Rating					Proposed Mitigation of Risk Exposure / Improvement Actions			Target / Future Risk Rating		
ID	Category	Source	Pathway	Receptor	Potential Consequences	Exposure Type	Consequence	Likelihood	Rating & Priority	Current Approach or (Existing Controls)	Effectiveness	Consequence	Likelihood	Rating & Priority	Risk Reduction Treatment or Asset Improvement Strategic or Approved Action	Action Owner	Planned Completion Date	Consequence	Likelihood	Rating & Priority
RISK SCENARIO 1 - MAINTAIN SEAWATER FLOODING PRACTICES																				
RS1-01	**Dust**	Ash dam dust particles	Off-site migration by strong winds	Member of the public	Adverse health impacts caused by particulate exposure	Compliance	2. Major	B. Probable	Extreme 4	Continue seawater flooding in accordance with the former Dust Management Plan	Marginal	2. Major	B. Probable	Extreme 4	Review alternate control strategies	Flinders				
				Surrounding environment	General nuisance					15Ha sealed area	Effective									
				Alliance workforce	Adverse media / PR / Political					Dust supressant and water cart application on accessible areas only	Marginal									
					Breach of licence conditions															
RS1-02	**Environmental**	Seawater/ash mixture in southern coffer dam	Failure of coffer dam wall caused by weakening/undercutting, leading to loss of containment	Adjacent environment Personnel & plant in vicinity of breach	Site clean-up required. Repair works to coffer dam wall Safety implications for personnel & plant if failure ocurred	Safety Environment	3. Moderate	D. Possible	Medium 16	Regular wall inspections	Marginal	3. Moderate	D. Possible	Medium 16	Review alternate control strategies	Flinders				
										Wall maintenance	Marginal									
RS1-03	**Safety**	Saturated ash	Inability of construction plant to safely operate on ash dam surface	Personnel & plant	Loss of equipment Safety impact to operator Delays for the ash dam rehabilitation works program	Safety Equipment	3. Moderate	C. Likely	High 11	Commence dam surface dry-out during summer 2016/17	Marginal	3. Moderate	E. Unlikely	Low 21						
										Selection of suitable earthmoving equipment	Effective									
										Contingency planning	Effective									
RISK SCENARIO 2 - INTERIM SEALING WITH VITAL BON-MATT STONEWALL																				
RS2-01	**Community**	Polishing pond dry-out leading to decaying organic material in the polishing pond	Airborne odour	Neighboring community	General nuisance leading to public complaints	Community relations	2. Major	B. Probable	Extreme 4	Early community engagement and provision of information	Marginal	2. Major	E. Unikely	Medium 18	Progressive monitoring. Seek alternate measures as required	Flinders				
					Adverse media / PR / Political					Sealing with soil, ash or use of an odour suppressant - refer proposal	Effective				**Refer Polishing Pond Sealing Risk Assessment - 23 November 2016**					
					Regulator intervention															

ASH STORAGE AREA INTERIM SEALING

AUGUSTA POWER STATIONS - 2nd JANUARY 2017

Risk Identification							Inherent Risk Rating			Residual Risk Rating					Proposed Mitigation of Risk Exposure / Improvement Actions			Target / Future Risk Rating		
ID	Category	Source	Pathway	Receptor	Potential Consequences	Exposure Type	Consequence	Likelihood	Rating & Priority	Current Approach or (Existing Controls)	Effectiveness	Consequence	Likelihood	Rating & Priority	Risk Reduction Treatment or Asset Improvement Strategic or Approved Action	Action Owner	Planned Completion Date	Consequence	Likelihood	Rating & Priority
RS2-02	**Community**	Insect breeding in stagnant water pools (mosquito, midge fly etc) of the polishing pond during dry-out	Airborne	Neighboring community	General nuisance leading to public complaints Adverse media / PR / Political Regulator intervention	Community relations	3. Moderate	C. Likely	High 11	Sealing with soil or ash - refer proposal	Effective	3. Moderate	D. Possible	Medium 16	Progressive monitoring. Seek alternate measures as required	Flinders				
										Increased salinity during dry-out will reduce the risk profile	Effective				**Refer Polishing Pond Sealing Risk Assessment - 23 November 2016**					
RS2-03	**Community**	Lack of water throughflow to Bird Lake	N/A	N/A	Bird Lake progressive dry-out leading to odour, insect and loss of amenity. Potential for community to blame Flinders Power Adverse media / PR / Political NOTE: Bird Lake is not on FP land	Community relations	3. Moderate	B. Probable	High 8	Early notification and engagement with PACC	Marginal	3. Moderate	C. Likely	High 11	Continued engagement of FP with PACC and EPA.	Flinders				
										Early and ongoing community engagement and provision of information	Marginal				**Refer Polishing Pond Sealing Risk Assessment - 23 November 2016**					
RS2-04	**Environmental**	Dust supressant migration to neighboring environment (land and marine)	Wind-blown during application, or overspray from aircraft Surface water via runoff from ash dam and polishing pond to Hospital Creek post application	Neighboring land Neighboring marine environment	Advserse ecological effects Adverse media / PR / Political Regulator intervention	Environmental	3. Moderate	C. Likely	High 11	Selection of environmentally safe and non-toxic dust supressant - Vital Bon-Matt Stonewall	Effective	4. Minor	D. Possible	Low 20	Monitoring and supervision by FP personnel during the application process	Flinders				
										Risk review conducted by SA EPA	Effective									
										Spray from banks using a watercart to seal outer margin and prevent the risk of overspray from cropduster	Effective									
										Use of plane fire bomb hatch rather than misters to increase particle size	Effective									
										Only apply during favourable weather conditions	Effective									
										Lift decant outlets on the ash dam to prevent surface water outflow	Effective									
										Use of meteorologcal data to inform cut-off for plane activities - Port Augusta Airport and/or ash dam met station	Effective									

ASH STORAGE AREA INTERIM SEALING

AUGUSTA POWER STATIONS - 2nd JANUARY 2017

Risk Identification							Inherent Risk Rating			Residual Risk Rating					Proposed Mitigation of Risk Exposure / Improvement Actions			Target / Future Risk Rating		
ID	Category	Source	Pathway	Receptor	Potential Consequences	Exposure Type	Consequence	Likelihood	Rating & Priority	Current Approach or (Existing Controls)	Effectiveness	Consequence	Likelihood	Rating & Priority	Risk Reduction Treatment or Asset Improvement Strategic or Approved Action	Action Owner	Planned Completion Date	Consequence	Likelihood	Rating & Priority
										Block polishing pond outlet to Hospital Creek	Effective								
RS2-05	Community	Community concern during application process (eg health concerns, noise, dust at Stirling North airstrip)	Noise, airborne particulate	Community residents	Adverse media / PR / Political	Community relations	3. Moderate	C. Likely	High 11	Early community engagement and provision of information	Effective	4. Minor	D. Possible	Low 20	Further community and media engagement activities as required.	Flinders				
					Regulator intervention					Selection of environmentally safe and non-toxic dust supressant - Vital Bon-Matt Stonewall	Effective									
										Risk review conducted by SA EPA	Effective									
										Spray from banks using a watercart to seal outer margin and prevent the risk of overspray from cropduster	Effective									
										Block polishing pond outlet to Hospital Creek	Effective									
										Stakeholder notification prior to activity - SAPOL, MFS, CFS, PACC, SA Water	Effective									
										Dust control at Stirling North airstrip (eg water cart and use of dust suppressant)	Effective									
										Establish operating times protocol for aircraft	Effective									
RS2-06	Environment	Patchy application of supressant leads to ineffective seal and risk of ash dust migration	Off-site migration by strong winds	Member of the public	Adverse health impacts caused by particulate exposure	Compliance	3. Moderate	C. Likely	High 11	Strength of application as per supplier recommendation - Vital Bon-Matt Stonewall	Effective	3. Moderate	D. Possible	Medium 16	Use of green pigment for visual assessment of application success	Flinders				
				Surrounding environment	General nuisance					Monitoring conducted by visual and real-time dust monitoring adjacent to ash dam	Effective									
				Alliance workforce	Adverse media / PR / Political					Re-application if required. PM10 data to be used to inform decision-making. Triggers to be established in consultation with EPA.	Effective									

ASH STORAGE AREA INTERIM SEALING

AUGUSTA POWER STATIONS - 2nd JANUARY 2017

Risk Identification							Inherent Risk Rating			Residual Risk Rating					Proposed Mitigation of Risk Exposure / Improvement Actions			Target / Future Risk Rating		
ID	Category	Source	Pathway	Receptor	Potential Consequences	Exposure Type	Consequence	Likelihood	Rating & Priority	Current Approach or (Existing Controls)	Effectiveness	Consequence	Likelihood	Rating & Priority	Risk Reduction Treatment or Asset Improvement Strategic or Approved Action	Action Owner	Planned Completion Date	Consequence	Likelihood	Rating & Priority
					Breach of licence conditions					Technical support by Vital Chemicals to assess the success of the application, and need for re-application in areas as required.	Effective									
RS2-07	Environment	Deterioration (via time, heat, wind or water erosion) of supressant leads to ineffective seal and risk of ash dust migration from localised areas	Off-site migration by strong winds	Member of the public	Adverse health impacts caused by particulate exposure	Compliance	2. Major	C. Likely	High 7	Strength of application as per supplier recommendation - Vital Bon-Matt Stonewall	Effective	2. Major	E. Unlikely	Medium 18						
				Surrounding environment	General nuisance					Monitoring conducted by visual and real-time dust monitoring adjacent to ash dam	Effective									
				Alliance workforce	Adverse media / PR / Political					Re-application if required following assessment	Effective									
					Breach of licence conditions					Accelerate long-term rehabilitation plans as required	Effective									
										Supplier inspection post-application and periodic as required	Marginal									
RS2-08	Environment	Extreme storm event causes deterioration of supressant leads to ineffective seal and risk of ash dust migration	Off-site migration by strong winds	Member of the public	Adverse health impacts caused by particulate exposure	Compliance	2. Major	A Almost certain	Extreme 3	Strength of application as per supplier recommendation - Vital Bon-Matt Stonewall	Effective	2. Major	E. Unlikely	Medium 18						
				Surrounding environment	General nuisance					Monitoring conducted by visual and real-time dust monitoring adjacent to ash dam	Effective									
				Alliance workforce	Adverse media / PR / Political					Re-application if required following assessment	Effective									
					Breach of licence conditions					Review if areas require smoothing off prior to application to prevent rilling/gullying, or removal of loose material	Marginal									
										Instigate a long-range severe weather and dust forecast service from BOM.	Marginal									

ASH STORAGE AREA INTERIM SEALING

AUGUSTA POWER STATIONS - 2nd JANUARY 2017

Risk Identification							Inherent Risk Rating			Residual Risk Rating					Proposed Mitigation of Risk Exposure / Improvement Actions			Target / Future Risk Rating		
ID	Category	Source	Pathway	Receptor	Potential Consequences	Exposure Type	Consequence	Likelihood	Rating & Priority	Current Approach or (Existing Controls)	Effectiveness	Consequence	Likelihood	Rating & Priority	Risk Reduction Treatment or Asset Improvement Strategic or Approved Action	Action Owner	Planned Completion Date	Consequence	Likelihood	Rating & Priority
										Contingency plan for severe weather including contingency stock levels of dust suppressant, forecasting of equipment and human resource availability, use of alternative dust suppression measures and the identification of trigger factors that will result in re-application of dust suppressant.	Effective									
										Consider modifications to topsoil fingers design to provide protection of suppressant during earthworks phase (consideration of additional short fingers at the western and eastern edges of the dam).	Marginal									
										Communication protocol for community information of potential dust events.	Marginal									
										Accelerate long-term rehabilitation plans as required	Effective									

McMAHON SERVICES

FlindersPower

FUGITIVE DUST TRIGGER ACTION AND RESPONSE PLAN

Revision	*Date*	*Document type*	*Description*	*Origin*	*Approval*
A	8 December 2016	Ash Dam Fugitive Dust Trigger Action Response Plan	Issued for Internal Review	RF	BD
0	9 December 2016		Issued for Review	RF/BD	EPA
1	5 January 2017		Finalised	RF/BD	BD
2	3 March 2017	Revised following EPA feedback	Revision	BW	BD

Contents

Tables

Glossary

Term	Definition
ALLIANCE	Unified Management team formed by two entities, MSA & Flinders Power
APS	Augusta Power Stations
BAM	Beta Attenuation Monitor (continuous PM10 dust monitor)
FPA	Flinders Power Alliance
MSA	McMahon Services Australia
TARP	Trigger Action and Response Plan

Roles and Responsibilities

Name	Position	Responsibility
	CEO (Flinders Power)	Ensuring appropriate human and financial resources to carry out the functions of this Plan.
	Program Manager (Flinders Power)	Development, implementation of, and compliance with this Plan.
	Facility Manager (Flinders Power)	Overall responsibility for Augusta Power Stations site. Development, implementation of, and compliance with this Plan.
	Project Director (McMahon Services)	Responsible for the leadership of the Ash Dam Rehabilitation Project. Ensure all project personnel understand the requirements of, and remain compliant with this

		Plan.
	Project Manager (McMahon Services)	Responsible for operational management of the Ash Dam Rehabilitation Project. Ensure that dust mitigation and response measures are implemented and complied with in accordance with this Plan.
	Site Manager (McMahon Services)	Responsible for the daily site works undertaken associated with the Ash Dam Rehabilitation Project. Ensure that the dust mitigation and response measures are implemented and complied with in accordance with this Plan. Notify Project Manager and Project Director when mitigation measures have been implemented. Notify Project Manager and Project Director of any exceedances.
	Specialist Environmental Services (Flinders Power)	Responsible for technical advice and support Ensure dust monitoring equipment is functional and accurate. Ensure proactive and reactive notification mechanisms are in place Reporting of data Monitoring of compliance with this Plan
	Environmental Coordinator (Flinders Power)	Responsible for technical advice and support Ensure dust monitoring equipment is functional and accurate. Collection and analysis of high-volume TSP and PM10 dust monitors Reporting of data
	Project Engineer (McMahon Services)	Assist in management of site works, including the implementation of dust management controls.

1. Introduction

This Fugitive Dust Trigger Action Response Plan (TARP) outlines the procedures and processes required to ensure the appropriate dust identification and mitigation actions are implemented during the Augusta Power Stations (APS) Ash Dam Rehabilitation Project.

This TARP is developed in accordance with the requirements of the Flinders Power Environmental Closure and Post Closure Plan and the Augusta Power Stations Dust Management Plan.

The mitigation and monitoring requirements included in this TARP have been compiled to ensure compliance with the Environment Protection Authority Licence number 13006 condition S-9 which states:

> *S-9 Dust Prevention*
>
> *The licensee must:*
>
> - *Take all reasonable and practicable measures to prevent dust leaving the Premises;*
> - *Develop a Dust Management Plan to the satisfaction of the EPA; and*
> - *Implement the Dust Management Plan approved in writing by the EPA (or any revised plan approved in writing by the EPA).*

Flinders Power Alliance is a partnership between McMahon Services and Flinders Power, responsible for the implementation and management of the Ash Dam Rehabilitation Project.

1.1 Guiding Principles

The guiding principles for the rehabilitation of the ash dam project are:

1. Efficient construction: the concept is safe and efficient to construct

2. Reliable design: the solution is safe for the community and the environment in the long term
3. Dust is suppressed: the concept reduces the potential of dust leaving the site
4. Water is managed: the concept allows for safe discharge of water
5. Realistic costs: the concept considers costs to Flinders through design, minimal maintenance and allows for re-use of the site
6. The landform is self-sustaining: zero or minimal ongoing maintenance
7. Public nuisance: risks associated with odour and insect breeding in ponded water are managed

This TARP is specifically prepared to address Guiding Principle 3.

1.2 Purpose

The focus of this TARP is the prevention and control of fugitive dust through early detection of air quality conditions deemed to be unacceptable with the criteria as set by the Environmental Protection (Air Quality) Policy 2016. The particular focus of this Plan is ensuring compliance within the surrounding communities of Port Augusta and Stirling North with the level applied in South Australia for PM10 (dust particles) as a concentration of 50 micrograms /m^3 averaged over 24 hours, and an annual average of 25 micrograms/m^3.

The purpose of the TARP is to:

- Outline the mechanisms used for early identification of dust causing conditions and activities that may cause a breach of this dust level within the community;
- Define response measures to high-dust events;
- Outline responsibilities within the project team structure for achieving compliance with this Plan; and
- Define a method to measure the effect of actions taken to reduce dust generation.

This TARP mandates escalating actions and responses to set trigger points. Where a trigger point is reached, the responding actions shall be carried out, properly and promptly.

2. Objective

The objective of the TARP is to provide the management measures required for the successful rehabilitation of the Ash Dam and borrow pit, whilst maintaining appropriate air quality standards.

3. Scope

The mitigation of fugitive dust emissions from the site is of paramount importance to minimise the effect of dust on the local community. Flinders Power Alliance has introduced a dust Trigger Action Response Plan (TARP) to prevent or control fugitive dust emissions to avoid exceeding criteria levels as standardised by the Environment Protection (Air Quality) Policy 2016, through early detection.

The key risk focus area for the Plan is the Ash Storage Area, and in particular the works associated with the rehabilitation program being undertaken by the Flinders Power Alliance.

3.1 Potential Dust-Generating Activities and Conditions

The following activities and conditions have been identified as having the potential to cause fugitive dust (ash or soil):

- Areas of unsealed Ash Storage Area.
- The clearance of the borrow pit;
- The loading of soil into dump trucks using excavators at the borrow pit;
- The haulage of soil by open-top dump truck along unsealed accessways to the Ash Storage Area;

- The dumping of soil along 'access fingers' on the Ash Storage Area;
- The emplacement of soil across the Ash Storage Area using a Pistenbully and/or D6 or D9 dozer;
- The final contouring of the borrow pit area;
- Harrowing of the soil on the Ash Storage Area and borrow pit ready for seeding;
- Exposed areas of soil on the borrow pit and ash storage area (along access fingers and areas of emplaced soil) prior to seed germination; and
- Ash Storage Area levee banks – inside and outside banks.

3.2 Weather Forecasting

The weather encountered at the site throughout the life of the project will have a significant impact on the dust generated and its subsequent impact upon sensitive receptors nearest the site.

Dust generation at the site is dependent on wind speed whereas wind direction will determine the risk to the identified sensitive receptors i.e. Port Augusta is located to the north-north west of the site hence a south to south east wind has the potential to drive any dust generated at the site towards the town. Whereas Stirling North located to the north-east may be affected by south-westerly winds.

Flinders Power Alliance have installed a weather station at site and currently have in place a 5-day weather forecasting system which is disseminated daily (every week day) to the FPA project team which includes the following:

- Wind speed and direction;
- General forecast information including temperature, chance of precipitation, predicted rainfall intensity etc;
- A risk coding system (wind speeds and direction in the at-risk vector for the neighbouring community);
- Bureau of Meteorology dust warning alert;
- Bureau of Meteorology severe weather alert.

As the predictions are for a 5-day forecast, the Friday report is utlised across the weekend by the project team. The responsibility for the issuing the daily report is with the Specialist Environmental Services, and in their absence, the Environmental Coordinator.

The location of the weather station is indicated in Figure 1. The weather station is fitted with a Windsonic™ which provides wind speed (0 – 60 m/s) and wind direction (0 - 359°).

Predicted weather conditions are discussed at the daily toolbox talk.

Forecasts identifying potential high winds or severe weather events result in close monitoring of conditions by all members of the project team. Monitoring includes a review of weather station data, regular screening of the Bureau of Meteorology website, monitoring of real-time dust levels and visual observations of conditions at the site.

3.3 Dust Mitigation General Measures

Ash Storage Area Sealing

The surface of the Ash Dam was sealed with dust suppressant Vital Bon-Matt Stonewall by water cart, hand spraying from the banks and by aerial application in November 2016 and again in January 2017.

Additional areas of dust suppressant application, such as the inside or outside levee banks, are applied on an as-needs basis by water cart or hand spraying.

Dust Mitigation Measures on Haul Roads

The primary suppression of fugitive dust emissions emanating from haul roads is the wetting down of the haul road with a water cart. Additionally, given this work is commencing in Summer 2017, frequency of wetting of the haul roads will be high. FPA have also committed to the application of a longer lasting dust suppressant reagent specifically developed for dust suppression on haul roads, Vital Chemical, Vital Bon-Matt HR.

Dust suppressant Vital Bon-Matt HR, is to be applied via watercart and will be applied to the haul roads on an 'as-needs' basis. In areas where heavy vehicles and machinery will be turning, the suppressant will be applied more frequently.

General Dust Management – Borrow Pit, Access Fingers and Emplaced Soil

The soil blend is a red-brown sandy clay with an inherent moisture content of approximately 10%. To date it has been demonstrated that the soil has good self-sealing properties to form a surface crust. The surface crust has demonstrated the ability to withstand wind speeds of 50km/hr.

For general dust management dust suppression shall be undertaken by pre-wetting prior to haulage, and wetting/spraying during potential dust generating activites. Water will be applied using water carts via a water cannon, hose, batter sprays or dribble bar.

Should conditions require it, a dust suppressant (Vital Bon-Matt Stonewall) will be utlised within the Borrow Pit, along the Access Fingers and within areas of emplaced soil on the Ash Storage Area. This continued monitoring of conditions, combined with assessment of dust monitoring data, is the responsibility of the Site Manager.

3.4 Dust Monitoring Locations

A total of five continuous real-time PM10 dust monitoring locations have been installed, three surrounding the Ash Storage Area and two at selected locations within the identified sensitive receptors (Port Augusta and Stirling North). The dust monitoring locations are illustrated in Figure 1.

These five stations support and complement the five ambient high-volume air samplers in existence within the Port Augusta and Stirling North community. The locations of these sampling stations are shown on Figure 2 below.

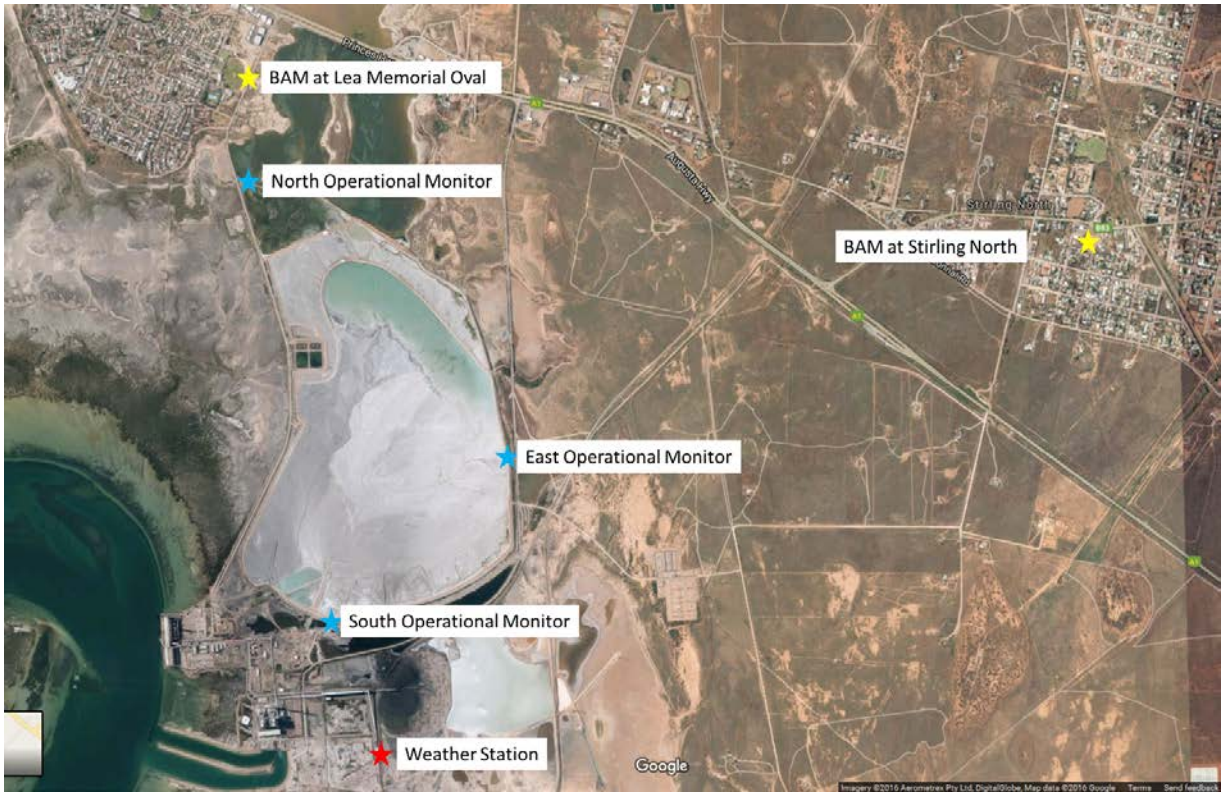

Figure 1 – Real-time Continuous PM10 Dust monitoring locations – Ash Storage Area & BAM Locations

Figure 2 High-Volume Air Sampler Locations – Port Augusta & Stirling North

Ash Dam

Three Ecotech *Neighbourhood Dust Monitors* have been installed as follows:

- The *South Operational Monitor*, located on the southern Ash Dam boundary
- The *East Operational Monitor*, located on the eastern Ash Dam boundary
- The *North Operational Monitor,* located on the northern boundary of the Polishing Pond at the closest point of site to Port Augusta residences.

The Ecotech Neighbourhood Dust Monitor records real-time data at 5 minute intervals; this is a continuous system measuring and reporting PM_{10}. This dust monitoring system provides 100% valid data return when continuous monitoring is not interrupted.

An Ecotech qualified technician will conduct monthly site visits, undertaking any general maintenance, calibration and validating recorded data.

These dust monitors will provide the data used for the trigger system.

For further detail and specifications, refer to document 'Ecotech Neighbourhood Dust Monitor'.

Community Monitors

Two Exactus Beta Attenuation Monitors (BAM) have been installed within the nearest identified sensitive human health receptors to the site, one each at Lea Memorial Oval (Port Augusta) and Stirling North. Data is collected on a 10-minute average basis. The data collected from these monitors will be utilised for community monitoring against the 24-hour ambient particulate concentrations (PM_{10} concentration of 50ug/m^3). Ecotech are engaged to perform a QAQC check, and NATA calibration requirements which are reported monthly.

For further detail and specifications, refer to the document 'MetOne BAM 1022 Data Sheet'.

3.5 Alert System

The data received from the Ecotech Neighbourhood Dust Monitors are monitored online in real-time by both Flinders Power and McMahon Services personnel. Data outputs are presented on screens within the operational offices onsite, directly adjacent to project team personnel. Text alerts have been developed in accordance with the threshold values listed in *Table* 1 below. Personnel nominated to receive the text alerts are:

-
-
-
-
-
-
-
-

The alert will trigger response actions as listed in *Table 3 – Trigger Action Responses.*

4. Trigger Point Setting and Response Measures

The FPA team have developed trigger points based on an iterative approach whereby dust measurements at site and within the community will be correlated against observations and management practices at site. The aim is to develop a management procedure to allow first response to be based on actual data supported by visual observations to allow for real-time reaction.

The target value for this project is to ensure dust emissions originating from the site do not cause an exceedance of the Environment Protection (Air Quality) Policy 2016 Goal of 50 µg/m^3 PM10 within the community over a 24hr monitoring period.

The trigger alert rationale for the community monitoring stations is based on "high level/short duration" & "low level/long duration", namely:

a) short term / high dust events – an acute dust situation requiring an immediate remedial action; and

b) long term / low dust levels - which unchecked may exceed the 24hr average, and are sometimes more difficult to observe - so a low limit alarm over a longer timeframe is needed.

The Ash Storage Area monitors only alert if each of the 3 conditions are met:

- wind speed over 7m/s; and
- wind from the direction of the ASA; and
- PM10 dust levels over the set criteria (Table 2) for each alert level.

The Community BAMs only alert if each of the 3 conditions are met:

- wind speed over 7m/s; and

- wind from the direction from the ASA (southerlies for Lea Memorial Oval or westerlies for Stirling North); and
- PM10 dust levels over the set criteria (Table 2) for each alert level

4.1 PM_{10} Trigger Levels

Table 1 - Trigger Levels / Concentrations

Community monitors – MetOne BAMs

Trigger Levels / Concentrations				
	Normal	**Level 1 Alert**	**Level 2 Alert**	**Level 3 Alert**
Ambient Conditions	PM_{10} <20 µg/m³	PM_{10} averages 90 µg/m³ over 1 hour (or 3 or more consecutive 10- minute periods)	PM_{10} averages 75 µg/m³ over 2 hours (or 3 or more consecutive 10- minute periods)	PM_{10} averages 60 µg/m³ over 3 hours (or 3 or more consecutive 10- minute periods)
Meteorological Conditions	Average wind speed 6 m/s	Average wind speed exceeds 7 m/s (for 3 or more consecutive 10-minute periods) **LMO:** Winds from south-west, or south or south-east **STN:** Winds from west or south-west	Average wind speed exceeds 7 m/s (for 3 or more consecutive 10-minute periods) **LMO:** Winds from south-west, or south or south-east **STN:** Winds from west or south-west	Average wind speed exceeds 7 m/s (for 3 or more consecutive 10-minute periods) **LMO:** Winds from south-west, or south or south-east **STN:** Winds from west or south-west

Ash Storage Area monitors –ECOTECH Neighbourhood Dust Monitors

Trigger Levels / Concentrations				
	Normal	**Level 1 Alert**	**Level 2 Alert**	**Level 3 Alert**
Ambient Conditions	PM_{10} <20 µg/m³	PM_{10} averages 60 µg/m³ over one hour (or 3 or more consecutive 10- minute periods)	PM_{10} averages 80 µg/m³ over one hour (or 3 or more consecutive 10- minute periods)	PM_{10} averages 100 µg/m³ over one hour (or 3 or more consecutive 10- minute periods)
Meteorological Conditions	Average wind speed 6 m/s	Average wind speed exceeds 7 m/s (for 3 or more consecutive 10-minute periods) **North monitor:** Winds from south or south-east **East monitor:** Winds from west or south-west **South monitor:** Winds from the north	Average wind speed exceeds 7 m/s (for 3 or more consecutive 10-minute periods) **North monitor:** Winds from south or south-east **East monitor:** Winds from west or south-west **South monitor:** Winds from the north	Average wind speed exceeds 7 m/s (for 3 or more consecutive 10-minute periods) **All monitors:** Winds from any direction

4.1.1 Visible Dust Generation

Dust generation will also be monitored visually. Plant and equipment will be utlised as visual guides. At times, visible levels of fugitive dust that are deemed unacceptable may not exceed the trigger values identified at the dust monitoring stations. Conversely, a PM10 trigger may be alarmed at the monitoring stations without any discernible level of dust.

For the purpose of this Fugitive Dust TARP, trigger values for visual dust assessment shall be applied as follows:

Table 2 Visual Dust Trigger Values

Trigger Levels / Concentrations				
	Normal	**Level 1 Alert**	**Level 2 Alert**	**Level 3 Alert**
Ambient Conditions – visual assessment	Minor localized dust during works activity	**Unsealed Roads** Visible dust above height of dump truck tray for any period of time up to 30 minutes. Visible dust above top of work ute for any period of time up to 30 minutes. **Earthmoving Works** Visible dust above excavator cab for any period of time up to 30 minutes. Visible dust above dozer cab for any period of up to 30 minutes. **In-situ Soil, Ash Dam** Visible dust above ash dam wall for any period of time up to 30 minutes. Visible dust above dozer/PistenBully cab for any period of time up to 30 minutes.	**Triggers per Level 1. Localised areas of dust generation however not contained within site boundary**	**Extensive areas of dust generation, not contained within site boundary**

		Ash Dam & Levee Banks Localised visible dust above ash dam wall for any period of time up to 30 minutes. Localised visible dust emanating from levee banks. **Dust from all activities contained within site boundary**		

Response measures for Level 1, 2 and 3 are outlined in *Table 3* below.

4.2 Trigger Responses

Table 3 - Trigger Action Responses

Trigger Response				
	Normal	**Level 1 Alert**	**Level 2 Alert**	**Level 3 Alert**
Dust Monitor Alarm (PM10)	• Continue work in accordance with site management procedures • Ensure all (two) water carts are in service • Visually monitor dust generation	**Response Leader: Site Manager** • Conduct a site inspection • Site Manager to actively monitor dust generation and apply appropriate treatment option. • Reduce site speed limits on unsealed roads to 15km/hr • Apply water and/or dust suppressant to haul roads, exposed areas of the borrow pit or ASA or levee banks via watercart and/or hand spraying • Ensure overloading of dump trucks with soil from borrow pit does not occur • Soakage with water of active work areas (borrow pit and ASA) • Site Manager to actively monitor dust generation and apply appropriate treatment option. • Utilise FP water cart	**Response Leader: Site Manager, Project Manager and Facility Manager** • Conduct a site inspection • Site Manager to actively monitor dust generation and apply appropriate treatment option. • Review operations and consider suspension of work • Reapply water and/or dust suppressant to haul roads, exposed areas of the borrow pit or ASA or levee banks via watercart and/or hand spraying • Schedule in works to low dust generating activities • Excavation areas to be reduced to low risk areas • Sprinkler/batter spray water application from water carts will all be operating • Spray soil before and after loading into dump trucks • Engage additional water cart/s (eg Demolition works project or Footners) • Undertake alternate route and/or concentrate on works and/or work areas with lower potential to generate dust	**Response Leader: Site Manager, Project Manager, Facility Manager, Project Director, Program Manager** • Conduct a site inspection • Site Manager to actively monitor dust generation and apply appropriate treatment option. • Cease operations, if required • Consider aerial application of dust suppressant by Aerotech

Ash Storage Area Contingency Plan – Extreme Weather Monitoring & Response

A three-tier system has been developed to monitor, prepare and respond to extreme weather events to reduce the potential for impact to the Ash Storage Area and the potential for dust lift-off events.

Activity	Responsibility
1. MONITORING	
1. Weather Forecasting • **5-day forecasting i.e.: 5 day look ahead (this forecasting covers Monday – Sunday)** • **BOM weather alerts** • **BOM dust alerts** • **BOM extreme weather alerts** Daily (M-F) email sent to distribution list. Text messaging on weekends by Tertiary contact if the forecast changes to the : - Flinders Power Management - Flinders Power APS Team - McMahon Services ASA Project Team - McMahon Services Decommissioning Project Team	Responsible personnel for forecasting and monitoring BOM alerts Primary – Secondary – Tertiary – MSA supervisor of the day. Daily monitoring of BOM alerts by on site ASA/MSA personnel. Public Holidays/night shifts – For those times that MSA personnel are not on site (e.g. nights and Public Holidays (most PH are worked)) e.g. Easter - The Primary and Secondary personnel (or their nominated representative) will monitor the BOM alerts and then inspect the ASA should the forecast dictate a change from “monitoring” to “prepare”.

2. **PM10 Real-Time Monitoring –**
FP nominated Personnel to Monitor on forecast high wind days. This can be done remotely and by text alert from the monitoring system. The following text alert parameters will apply:

Community monitors – MetOne eBAMs

Lea Memorial Oval (LMO)
Stirling North (STN)

Trigger Levels / Concentrations				
	Normal	**Level 1 Alert**	**Level 2 Alert**	**Level 3 Alert**
Ambient Conditions	PM_{10} <20 µg/m³	PM_{10} averages 90 µg/m³ over 1 hour (or 3 or more consecutive 10- minute periods)	PM_{10} averages 75 µg/m³ over 2 hours (or 3 or more consecutive 10- minute periods)	PM_{10} averages 60 µg/m³ over 3 hours (or 3 or more consecutive 10- minute periods)
Meteorological Conditions	Average wind speed 6 m/s	Average wind speed exceeds 7 m/s (for 3 or more consecutive 10-minute periods) **LMO:** Winds from south-west, or south or south-east **STN:** Winds from west or south-west	Average wind speed exceeds 7 m/s (for 3 or more consecutive 10-minute periods) **LMO:** Winds from south-west, or south or south-east **STN:** Winds from west or south-west	Average wind speed exceeds 7 m/s (for 3 or more consecutive 10-minute periods) **LMO:** Winds from south-west, or south or south-east **STN:** Winds from west or south-west

Ash Storage Area monitors –ECOTECH Neighbourhood Dust Monitors

Trigger Levels / Concentrations				
	Normal	**Level 1 Alert**	**Level 2 Alert**	**Level 3 Alert**
Ambient Conditions	PM_{10} <20 µg/m³	PM_{10} averages 60 µg/m³ over one hour (or 3 or more consecutive 10- minute periods)	PM_{10} averages 80 µg/m³ over one hour (or 3 or more consecutive 10- minute periods)	PM_{10} averages 100 µg/m³ over one hour (or 3 or more consecutive 10- minute periods)
Meteorological Conditions	Average wind speed 6 m/s	Average wind speed exceeds 7 m/s (for 3 or more consecutive 10-minute periods) **North monitor:** Winds from south or south-east **East monitor:** Winds from west or south-west **South monitor:** Winds from the north	Average wind speed exceeds 7 m/s (for 3 or more consecutive 10-minute periods) **North monitor:** Winds from south or south-east **East monitor:** Winds from west or south-west **South monitor:** Winds from the north	Average wind speed exceeds 7 m/s (for 3 or more consecutive 10-minute periods) **All monitors:** Winds from any direction

3. **PM10 & TSP Ambient Monitoring High-Volume Sampling**

Daily as per EPO obligation. Will be adjusted according to requested requirements as they arise. These instruments will only be able to provide post event information, not real time, due to the time it takes to process the data. This information will be valuable in any auditing process.

4. **Daily ASA monitoring and Undertake spot-maintenance re-applications as soon as practical where monitoring and inspection has confirmed a breach of surface coating. Monitoring will be in the form of a visual inspection looking for signs of dust and surface damage.**
   This task will be undertaken by any of the ASA alliance personnel. MSA contract supervisor will be responsible for nominating a suitable person daily. Any action from a witnessed dust event or likelihood of a dust event will be communicated to the Facility Manager who will notify the appropriate stakeholders.

The responsible forecasting and monitoring personnel will contact the facility manager or his nominated representative who will then escalate the contingency plan:

The following triggers shall prompt an escalation from 'Monitoring' to 'Prepare':

Extreme weather forecasted of severe rain and or wind events i.e. BOM 1 in 10yr Annual rainfall intensity for Port Augusta = 61mm rain forecast for a 24hr period. Wind gust of 63 kmh – 75 kmh i.e. gale force winds (Beaufort Wind Scale) as per recommendation from the suppressant supplier Vital Chemicals

2. PREPARE

1. **Daily inspections –** This task will be undertaken twice daily at a minimum by any of the ASA alliance personnel who will working in the area. MSA contract supervisor will be responsible for nominating a suitable person daily. **This will be visual monitoring for signs of dust and surface damage.** Any action from a witnessed dust event or likelihood of a dust event will be communicated to the Facility Manager who will notify the appropriate stakeholders. See example of the recording sheet to be used below.

   On public holidays e.g. Easter when there are no MSA personnel on site the same contingency as listed in "monitor – Public holidays" will occur. MSA will have local operators available on call should any action be deemed necessary by the inspecting personnel.

2. **Contact service providers :**
   Footners water cart (0418805390)
   Aerotech (08 81320400)
   Immediately put on standby for mobilisation in extreme events where likelihood of aerial re application of suppressant or extra water carts (i.e. other than the 3 site water carts owned by MSA) is required.
   Contingent aerial applicators:
   - Aircair SA – 08 88351300 Arthurton
   - County Helicopters - 03 5338 1999 SA Clare

3. **Ready contingency suppressant IBC's**
   (Current stocks of 20 IBC' s of Vital Bon-Matt Stonewall and 20 IBC's of Vital HR as a further contingency = 40 IBC's this volume allows approx. 8 days constant land based application or 4 days aerial application as advised by MSA. 1 IBC covers approx. 1 hectare.). Minimum 20 IBC's retained at all times
   Contact suppliers for availability of extra suppressant should it be required. 3 day turnaround.

4. **Prepare community notification of a possible dust event. This will be delivered through the normal stakeholder list via email and forwarded to the radio station as an alert for the community.**

Responsible -

3. RESPOND

- *The triggers that shall prompt an escalation from **'Prepare' to 'Respond'** are detailed in "Monitor" section 2.*
- ***Initial inspection will occur depending on safe access to the area.***

Options include:
4WD vehicle on the access roads and fingers.
By foot.
Site drone which is owned and piloted by MSA personnel.
Extremely low ground pressure equipment.
Personnel responsible for initial inspection will be determined by the Facility Manager.
Options are:

1. **MSA**
   -
   -
   -
   -
2. **FP**
   -
   -
   -
   -

Factors considered in the assessment are to be:
Looking for peeling or a physical breach of the surface coating.

1. Re allocate rehabilitation team resources to dust remediation and prevention activities as per approved TARP. Full time contract personnel site presence is 7 days per week. Minimum of 12 persons to allocate tasks to.
2. Mobilise and activate aerial suppressant application through first available provider from the above identified. Provide relevant information on areas to target.
3. Allocate appropriate machinery to areas identified as possible areas activities. E.g. watercarts, trucks, excavators and low ground pressure machines i.e. PistenBully and D7R dozer. This machinery is available at site at all times.

Notes:
There is a full time presence on site with resources and equipment available to redirect for weather event remediation activities please note in the circumstances of out of normal hours e.g. night and public holidays please refer to "Monitoring – Public Holidays" and "Prepare Public Holidays".

The current activities of constructing access fingers provide an advantage to responding to issues by way of good access to areas as they are constructed rather than just relying on aerial suppression. Such remediation activities to consider in events are:

- Spraying suppressant (water and or vital products) from access banks to identified areas that

are accessible.

- Placing topsoil on areas that are accessible using the extreme low ground pressure machinery. More options for this process each day.
- Using aerial suppression application, as per previous 2 applications, for those areas that cannot be accessed within a reasonable timeframe.

Ash Storage Area Daily Inspection Records

AUGUSTA POWER STATIONS

WEEK ENDING ___ / ___ / ___

DATE	DAY	TIME	WIND CONDITIONS				COMMENT ON DUST	ACTION / CLOSEOUT	REPORTED BY
			LIGHT	MODERATE	HEAVY	STRONG			
	MON								
	MON								
	TUES								
	TUES								
	WED								
	WED								
	THU								
	THU								
	FRI								
	FRI								
	SAT								
	SAT								
	SUN								
	SUN								

Sheet to be filled out on a daily basis and submitted to Flinders Power representative weekly (each Monday).

Report submitted by: _____ **Report Received by:** _____

Date: _____ **Date:** _____